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The Office of the State Registrar and Center for Health Statistics gratefully acknowledges the contributions of Maurice Barone, B.S., Michael Beebe, B.S., Sandra Raymond, Joy Weaver and Billie Robinson, Statistical Services Section; Raymond R. Humphrys, Ph.D., Vital Statistics Section; Marguerite Nobert, Maria Abrigo, Carol Cunningham, Dee Parrott, Linda Pung and Denise Williams, Nosology Unit; Lorain Ellis, Terry Lynn Brundage, Linda Gibson and Linda Simpson, Registration Unit.

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Category not applicable	000
Quantity zero	-
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Figure does not meet standards of reliability or precision	*
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INTRODUCTION

The 1985 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1985. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1985, data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated with respect to where the event occurred rather than the residence of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any tabulations pertaining to Michigan residents. This report includes all such out-of-state certificates received prior to April 30, 1986, and all in-state certificates and records received prior to March 15, 1986. Records from a few Michigan counties and institutions which were filed after March 15, 1986 were also included. Although a few additional records for the calendar year 1985 were received after these filing dates, their exclusion from this report is statistically insignificant.

This report is composed of the following sections and appendices:

1. Natality Section
2. Mortality Section
3. Marriage and Divorce Section
4. Reference Appendix

Comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office. A summary of prepared vital statistics tabulations, Index to Michigan Vital Statistics 1960 to Present, is also available. This index lists the types of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitations of staff and resources.

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TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS

DEFINITIONS

BIRTH WEIGHT-Weight of fetus or infant at time of delivery.

FETAL DEATH-Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH-A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD-Number of completed weeks elapsed between the first day of the last menstrual period and the date of delivery.

HEBDOMADAL DEATH-Death occurring to an individual less than 7 days of age.

INFANT DEATH-Death occurring to an individual less than 1 year of age.

INTERPREGNANCY TIME PERIOD-Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH-Deaths are grouped into 72 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY-A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:

nqx = The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x+n).

lx = The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000.

ndx = The number of persons who would die during an age interval (x to x+n) out of an original cohort of 100,000.

nLx = The number of person-years that would be lived within an indicated age interval (x to x+n) out of an original cohort of 100,000 alive for all or part of the interval.

Tx = The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died.

ex = The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x).

LIVE BIRTH-A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
Effective on November 9, 1981, the definition of a live birth is established in administrative rule number 325.3201 as follows:

> "*Live birth*" means the complete expulsion or extraction from a pregnant woman of a product of human conception which, after such expulsion or extraction, shows any evidence of life, whether or not the umbilical cord has been cut or the placenta is attached.

LIVE-BIRTH ORDER-Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH-Birth in 1984 or later wherein the birth weight is less than 2,500 grams (approximately 5 lbs., 8 oz.) or birth before 1984 wherein the birth weight is 2,500 grams or less.

MATERNAL DEATHS-Those deaths wherein the physician has designated a maternal condition as the underlying cause of death (9th Revision ICD codes 630–676).

MEAN-The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN-The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION-City, village, or township.

NEONATAL DEATH-Death occurring to individual less than 28 days of age.

OCCURRENCE-Place where the event actually occurred.

PERINATAL DEATH-Fetal death or death under 1 week of age.

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH-The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE-Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents.

REMAINING YEARS OF LIFE-A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE-Usual place of residence for the person to whom the event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS-Live births and fetal deaths.

UNDERLYING CAUSE OF DEATH-That condition giving rise to the chain of events leading to death.

RATES AND RATIOS

AGE-ADJUSTED DEATH RATE-A summary rate of death that is developed using a standard population distribution to improve the comparability of rates for areas or population subgroups with differing age distributions. When calculated by the direct method, as in this report, age-specific death rates for a geographic area or population subgroup are multiplied by the standard population by specific age and the products summed and divided by the total standard population. Age-adjusted death rates represent the mortality experience that would have occurred in a standard population had the age-specific rates of the area or population subgroup been experienced by the standard population. These rates are presented as per 100,000 population.

AGE-SPECIFIC BIRTH RATE-No. of resident live births to women of a specific age divided by total resident female population of specific age x 1,000.

AGE-SPECIFIC DEATH RATE-No. of resident deaths in specific age group divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH-No. of resident deaths in specific age group and from a specific cause divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC MARRIAGE RATE-No. of occurrent marriages in specific age group by sex divided by total resident population in specific age and sex group x 1,000.

CAUSE-SPECIFIC RATE-No. of resident deaths due to a specific cause divided by total resident population x 100,000.

CONGENITAL ANOMALY RATE-No. of resident live births with a congenital malformation reported divided by the total number of resident live births x 10,000.

COMMUNICABLE DISEASE CASE RATE-No. of reported cases (specific communicable diseases) divided by total resident population x 100,000.

CRUDE BIRTH RATE-No. of resident live births divided by total resident population x 1,000.

CRUDE DEATH RATE-No. of resident deaths divided by total resident population x 1,000.

DIVORCE RATE-No. of persons (with occurrent divorces and annulments) divided by total resident population x 1,000.

FERTILITY RATE-No. of resident live births divided by total resident female population (ages 15-44) x 1,000.

FETAL DEATH RATE-No. of resident fetal deaths divided by total resident live births and resident fetal deaths x 1,000.

FETAL DEATH RATIO-No. of resident fetal deaths divided by total resident live births x 1,000.

FIRST MARRIAGE RATE-No. of occurrent marriages to persons not previously married by sex divided by total resident population by sex x 1,000.

INFANT MORTALITY RATE-No. of resident infant deaths divided by total resident live births x 1,000.

LOW-WEIGHT BIRTH RATIO-No. of resident low-weight births divided by total resident live births x 1,000.

MARRIAGE RATE-No. of resident persons married in an area divided by total resident population x 1,000.

MATERNAL DEATH RATE-No. of resident maternal deaths divided by total resident live births x 10,000.

NEONATAL DEATH RATE-No. of resident neonatal deaths divided by total resident live births x 1,000.

NO PRENATAL CARE RATIO-No. of resident live births to mothers with no prenatal care divided by total resident live births x 1,000.

PERINATAL DEATH RATE-No. of perinatal deaths divided by total resident live births and resident fetal deaths x 1,000.

RATE OF NATURAL INCREASE-(Total resident live births minus total resident deaths) divided by total resident population x 1,000.

TOTAL FERTILITY RATE-Sum of (age-specific birth rates) x (number of years in age group) for each age group from ages 10-14 through 45-49 years.

RELIABILITY OF RATES

Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for atherosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible confounding factors. For this reason the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

QUALIFICATIONS AND LIMITATIONS OF DATA AND CALCULATIONS

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation or that weigh 400 grams or more. Prior to the introduction of a new reporting form for fetal deaths on September 30, 1978, Michigan law required only the reporting of deaths of fetuses which had passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may have resulted in some underreporting of fetal deaths. The change in definition has had little impact on the number of fetal deaths reported.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next it is necessary to apply a *comparability ratio*. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

In 1979 the 9th Revision of the International Classification of Diseases, WHO, was introduced for coding causes of death and was employed in categorizing the data for 1985.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Felix Moore formerly of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ndx and nqx. An iteration procedure is also used for nLx for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

AGE-ADJUSTMENT PROCEDURE AND POPULATION ESTIMATION

Population data for 1970 and 1980 were obtained from the April 1, 1970 and April 1, 1980 census counts. Data for 1980 include revised census data as released by the Census Bureau. The population totals used for 1971-1979 are intercensal estimates prepared by the Census Bureau utilizing the revised 1980 census figures. The breakdowns of these totals by age, race, and sex were prepared by the Office of the State Registrar and Center for Health Statistics. For 1970 and 1980 the proportion of the total population in each age, race, and sex group was computed. Estimates of the proportion of the total population in each age, race, and sex group for the years 1971-1979 were then derived by interpolating between the proportions for 1970 and 1980. These subgroup proportions were then applied to the state totals to obtain population estimates by age, race, and sex for years 1971-1979.

Population estimates by age, race and sex for 1985 were prepared by projecting the mean annual change in the race proportions of each age-sex group of the population observed between the 1970 and 1980 censuses.

The age-adjusted rates for Michigan presented in this report for years 1970-1985 were calculated using Michigan resident mortality data and the series of population data described above. Death records with the race not stated were first randomly allocated to the white and other than white groups based on the proportion of Michigan resident deaths in each of the racial categories for that year. Records with sex not stated were randomly assigned to male and female (50 percent each). Records with age not stated were allocated to the age group 85 and over.

In the age-adjustment procedure ten age groups were employed including under 1 year, 1-14 years, ten year age groups from 15-24 years to age 75-84, and 85 years and over. Age-specific rates for the total population and for each subgroup were applied to the same standard population distributed by age. The resulting ("expected deaths") were then summed over the ten age groups and divided by the total of the standard population to obtain the age-adjusted rate. The standard population selected was the 1940 United States enumerated population. Comparisons can be made between subgroup rates.

between rates in different years, and between rates for Michigan and similarly computed rates for the United States.

UNITED STATES DEATH RATES

Death rates for the United States were taken from publications by the National Center for Health Statistics, U.S. Dept. of Health and Human Services. Rates for the United States shown in the series of tables of age-adjusted death rates for Michigan and the United States are based on the 1980 census enumeration. The U.S. rates for 1971-1980 have been revised as a result of the large difference between the 1980 census enumeration and the previously estimated population for 1980. The 1980 census enumeration was about 5.5 million higher than the estimated population for April 1, 1980.

The unadjusted death rates for the U.S. for all causes and by cause for 1981 through 1985 quoted in the text and shown in Tables 2.1 and 2.7 were calculated using population estimates based on the 1980 census enumeration.

NATALITY

SECTION I

NATALITY: AN OVERVIEW, 1985

TOTAL RESIDENT BIRTHS	138,902
TOTAL RESIDENT LIVE BIRTHS	138,052
RESIDENT LIVE BIRTHS PER DAY	378.2
TOTAL RESIDENT FETAL DEATHS	850
RESIDENT FETAL DEATHS PER DAY	2.3
CRUDE BIRTH RATE	15.2
FERTILITY RATE	61.4
FETAL DEATH RATIO	6.2
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	40.1
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,402
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,417
LOW WEIGHT LIVE BIRTHS	9,403
LOW WEIGHT BIRTH RATIO	68.1
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	26
MEDIAN AGE OF MOTHER (FETAL DEATHS)	26
LIVE BIRTHS WITH CONGENITAL ANOMALIES	972
CONGENITAL ANOMALIES PER 10,000 LIVE BIRTHS	70.4
LIVE BIRTHS WITH NO PRENATAL CARE	865
NO PRENATAL CARE RATIO	6.3
HOME BIRTHS	620
LIVE BORN SETS OF TWINS	1,456
LIVE BORN SETS OF TRIPLETS	18
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	1
MALE LIVE BIRTHS PER 100 FEMALE LIVE BIRTHS	106.6

NATALITY

Between 1900 and 1985 the number of total births (live births and fetal deaths) has varied considerably. The general trend has been increasing numbers of total births from 1900 through 1957, declining numbers through 1976 and fairly stable numbers since that time. According to the annual enumeration of births by local officials in 1900 there were 45,024 births in Michigan. This figure dropped slightly to 44,722 in 1901 (the lowest total in the century). The number of births reported increased significantly with the initiation in 1906 of mandatory filing of individual certificates for each Michigan birth. Total births increased during the next two decades, dropped temporariiy in 1919, and then leveled off at just over 100,000 between 1924 and 1930. During the first years of the Great Depression, total births declined from 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945, total births increased to a century high peak of 211,642 in 1957. Births in the next two decades dropped to a post-World War II low of 132.642 in 1976. Since 1976, the number of total births increased, reaching 146,297 in 1980, declined to 133,869 in 1983 and increased to 138,902 in 1985 (Table 1.1).

LIVE BIRTHS

The smallest number of live births officially recorded in this century was 43,221 in 1901. The actual number of live births was undoubtedly higher. Because of the method of recording, many live births were probably not recorded. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1985. Live births, which constitute a large percentage of total births, naturally followed the same pattern of increases and decreases, rising appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, however, live births increased by 5.4 percent, the largest such increase since 1951. In each of the following three years the number of live births also increased. In 1980 there were 145,162 live births, the highest annual total since 1972. Between 1980 and 1983 the number of live births declined by 8.4 percent, reaching 133,026 in 1983. By 1985 the number of live births increased 3.8 percent to 138,052.

The national pattern is similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. Unlike Michigan, the number of live births for the nation increased in nine out of ten years from 1976 through 1985. For 1985 the provisional figure was 3,749,000 an increase of 2.2 percent above the figure for 1984.

Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is stabilized (Figure 1.2). The crude birth rate in Michigan ranges from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate increased from 22.1 in 1906, the first year for filing birth certificates, to 26.2 in 1916. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Between 1956 and 1976 Michigan's crude birth rate declined by 47 percent, falling to 14.4. The crude birth rate then increased reaching 15.7 by 1980. By 1983 the crude birth rate had declined to 14.5. In 1985 the rate increased to 15.2.

Table 1.1
Total Births[1], Michigan Residents,
Selected Years, 1900-1985

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,232
1974	138,852
1975	135,287
1976	132,642
1977	139,700
1978	140,003
1979	145,627
1980	146,297
1981	141,619
1982	138,903
1983	133,869
1984	136,603
1985	138,902

[1] Live births plus fetal deaths.

FIGURE 1.1
LIVE BIRTHS, MICHIGAN RESIDENTS, 1900-1985

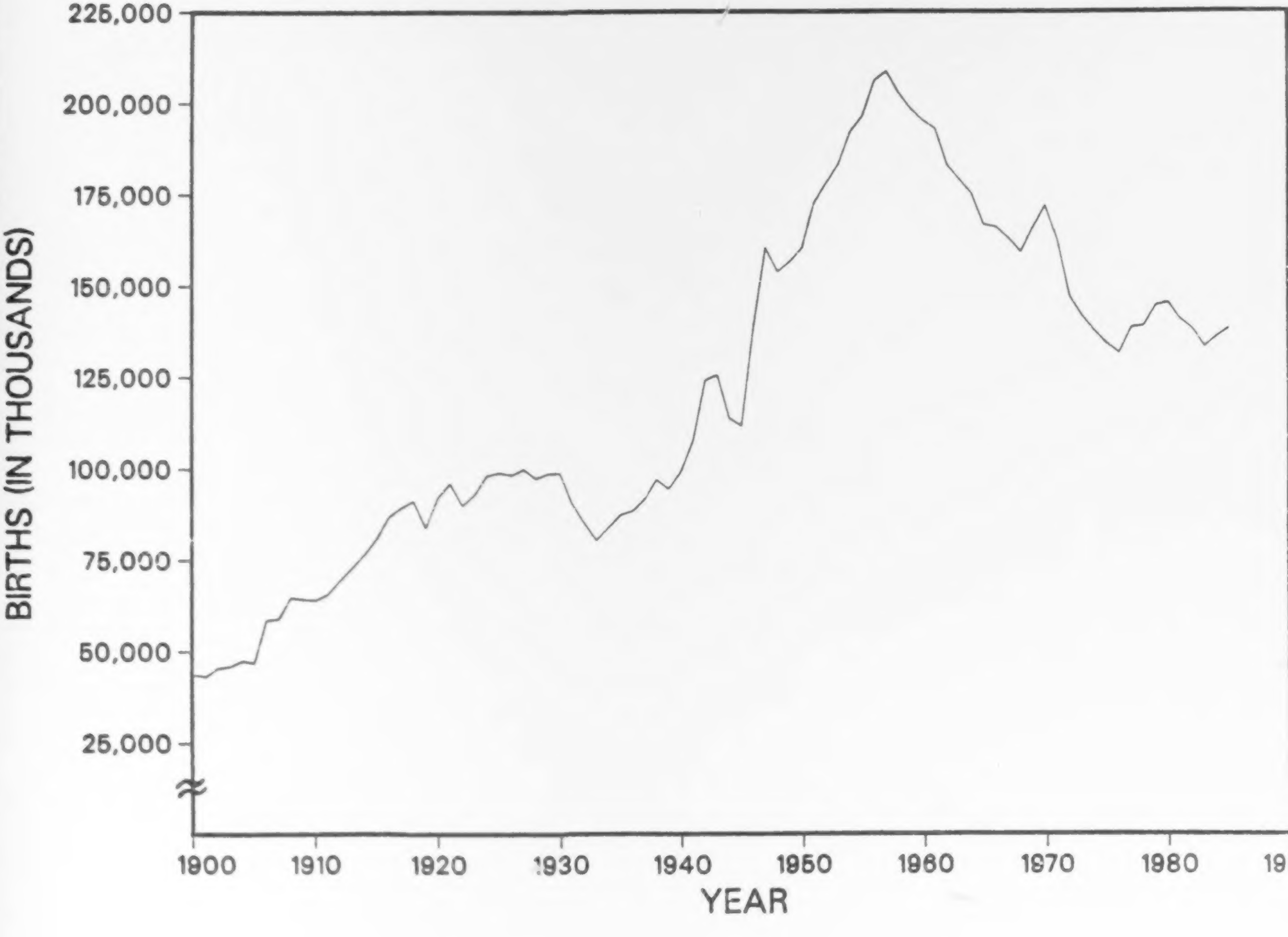
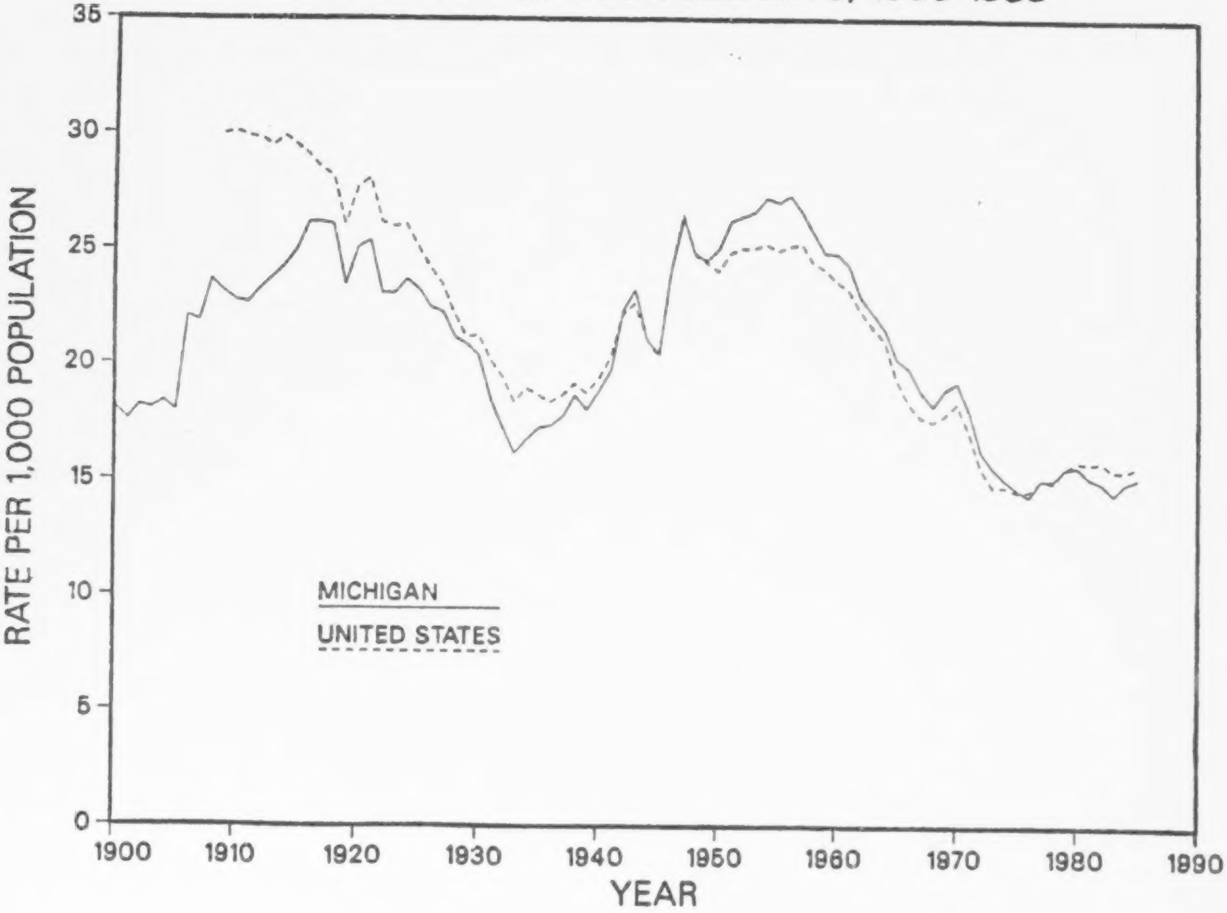


FIGURE 1.2

LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1900-1985 AND UNITED STATES RESIDENTS[1] 1909-1985



1-United States Rates prior to 1909 are not available.

National statistics since 1900 follow the same general pattern of rising and falling as observed in Michigan. The highest rate observed nationally over the period 1909 through 1985 was 30.1 in 1910, while the lowest was 14.6, occurring in both 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state twice. National birth rates were below Michigan rates from 1949 through 1975. For the past six years the rate for the nation has been above that observed in Michigan. The 1985 provisional rate for the United States was 15.7 (Table 1.2).

FERTILITY

The crude birth rates examined above are useful statistics for gauging overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not specifically incorporate the size of the population capable of bearing children. This population subset, generally considered to be women between the ages of 15 through 44, does not always maintain a stable relationship with the total population. A more exact measure for analyzing changing birth patterns is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age, more valid comparisons for various periods of time and locations are possible.

A comparison of fertility rates for Michigan with those for the United States is presented in Table 1.3. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan has dropped 39.0 percent, while the fertility rate in 1985 was 50.1 percent below the 1960 rate. For the United States over this same period the crude birth rate declined 33.8 percent and the fertility rate fell by 44.0 percent. The difference in these two measures occurs because the proportion of the population in the childbearing ages has increased over this 26 year period.

Figure 1.3 displays the changes in the total fertility rate between 1920 and 1985 for Michigan and the United States (see also Table 4.4). The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age-specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled that of the nation. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching 4,100.0 in the latter year. Between 1957 and 1976 the total fertility rate in Michigan declined to a low of 1,709.5 in 1976. The rates for the following four years were slightly higher. In 1983 a new record low total fertility rate of 1,568.5 was observed for Michigan. The rate was 1,595.5 for Michigan in 1984 and 1625.0 in 1985. The rate was 1,805.5 in 1984 for the United States.

Since 1973 both Michigan and national total fertility rates have been below 2,000. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive the reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result. It should be noted that although the total fertility rate has been below 2,000 since 1973 the rate of natural increase for Michigan remains positive. Over the period 1973 through 1985 there were 811,089 persons added to the population of Michigan through the excess of live births over deaths.

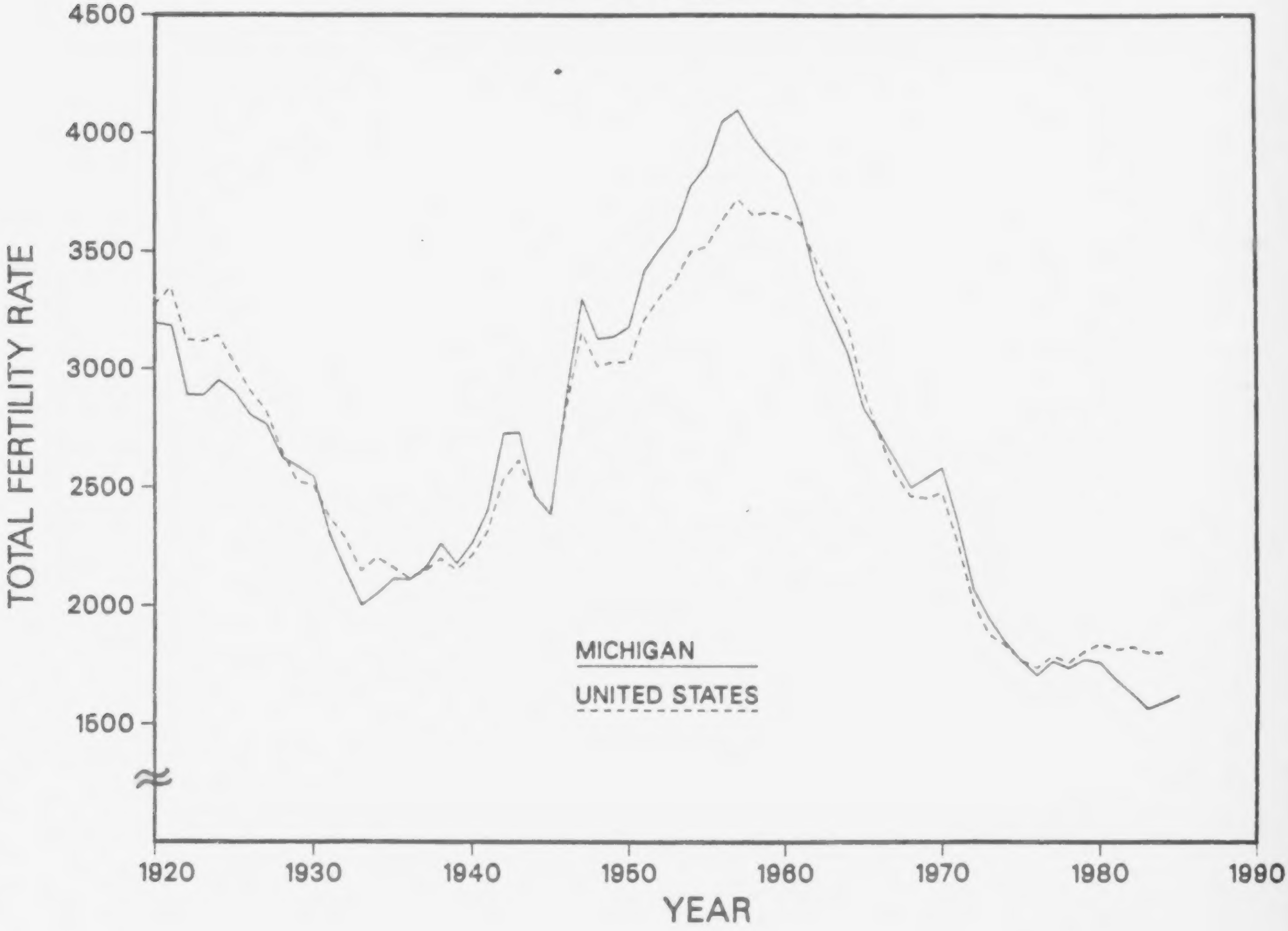
Table 1.2
Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900-1985

UNITED STATES		YEAR	MICHIGAN	
LIVE BIRTHS	RATE		LIVE BIRTHS	RATE
---	---	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.1	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.6	1968	159,058	18.3
3,600,206	17.9	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.1
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.8	1973	141,550	15.6
3,159,958	14.8	1974	137,414	15.1
3,144,198	14.6	1975	133,931	14.7
3,167,788	14.6	1976	131,378	14.4
3,326,632	15.1	1977	138,416	15.1
3,333,279	15.0	1978	138,802	15.1
3,494,398	15.6	1979	144,452	15.6
3,612,258	15.9	1980	145,162	15.7
3,629,238	15.8	1981	140,579	15.2
3,680,537	15.9	1982	137,950	15.0
3,638,933	15.5	1983	133,026	14.5
3,669,141	15.5	1984	135,782	15.0
3,749,000Pr.	15.7Pr.	1985	138,052	15.2

Table 1.3
Fertility Rates, Michigan and United States Residents, Selected Years, 1900-1985

UNITED STATES	YEAR	MICHIGAN
---	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.1	1961	119.0
112.0	1962	110.8
108.3	1963	106.6
104.7	1964	102.6
96.3	1965	95.9
90.8	1966	94.0
87.2	1967	90.8
85.2	1968	87.3
86.1	1969	89.6
87.9	1970	91.7
81.6	1971	84.5
73.1	1972	75.1
68.8	1973	71.2
67.8	1974	68.0
66.0	1975	65.5
65.0	1976	63.5
66.8	1977	65.9
65.5	1978	65.0
67.2	1979	66.6
68.4	1980	66.3
67.4	1981	63.2
67.3	1982	61.7
65.8	1983	59.3
65.4	1984	60.5
66.1Pr.	1985	61.4

FIGURE 1.3
TOTAL FERTILITY RATES,[1] MICHIGAN AND UNITED STATES RESIDENTS, 1920-1985



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[1] Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.

RACIAL COMPOSITION

The racial composition of live births in Michigan changed over the period 1970 through 1985 (Table 1.4). Live births of white persons declined from 83.8 percent of all live births in 1970 to 81.2 percent in 1973. Between 1974 and 1985, this percentage has held between 81.3 and 82.5. In 1985, the percentage was 81.8. Live births of black persons increased from 15.7 percent of the total in 1970 to 18.2 percent in 1973 and then decreased to 16.4 percent of all live births in 1985. Live births of all other races increased from 0.4 percent in 1970 to 1.3 percent in 1981, held at that level through 1983 and increased to 1.7 in 1985. It should be noted that Indians from India were classified as white before 1978 and among Asian or Pacific Islanders since 1978. Also changes in the method of determining the race of the infant born in 1984 to parents of different races resulted in a 0.7 percent decrease in the number of infants coded white and a 0.1 percent decrease in the number of infants coded black when compared to the numbers which would have been coded white and black in 1984 if the method used in 1983 had been retained. There was a corresponding increase in the number of births coded to a race or national origin other than white or black in 1984. In absolute terms, the numbers of births of black and white infants declined between 1970 and 1976, with an especially sharp decline observed in births of white infants between 1970 and 1972. Between 1976 and 1980 the numbers of live births of white and black infants increased by 10.4 and 8.0 percent respectively. From 1980 through 1983 the numbers of white and black infants decreased to the second lowest and lowest numbers respectively since 1970. The numbers of white infants increased in 1984 and 1985 while the numbers of black infants increased in 1984 and decreased in 1985. The numbers of Asian or Pacific Islander births remained fairly stable between 1970 and 1977. A sharp increase in the number of births occurred in 1978 when births to Indians from India were added to this category. The numbers of American Indian births increased by about 64 percent between 1970 and 1983. Most of the increases observed in 1984 and 1985 for American Indians and Asian or Pacific Islanders was the result of coding changes.

Table 1.5 provides a comparison between crude birth rates and fertility rates for white persons and other races in Michigan for the period since 1970. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for white persons. By 1972, this percentage had increased to 61.6 percent. In 1974, the percent dropped sharply to 47.5, and by 1982 it had fallen to 22.8. In 1985, this ratio was 24.7 percent. Paralleling the trends in numbers of live births, the crude birth rates for both groups declined between 1970 and 1976. Between 1976 and 1980 the crude birth rate for white persons increased by 10.3 percent, while that for other than white persons remained essentially unchanged. By 1985 the crude birth rates for white and other than white persons declined by 2.7 and 8.1 percent, respectively. The crude birth rate for white persons in 1985 was 20.7 percent below that observed in 1970 while the rate for the other than white group was 31.6 percent below the rate for 1970.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure for white persons compared to those of all other races. By comparing live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates decrease. The fertility rate for other than white persons was 33.1 percent above the rate for white persons in 1970 and 17.6 percent higher in 1985. Since 1970 the fertility rate for other than white persons has declined 40.1 percent compared with a 32.2 percent drop for white persons.

Table 1.4
Live Births by Infant's Race or National Origin, Michigan Residents, 1970-1985[1]

YEAR	TOTAL ALL RACES	WHITE[2]	BLACK	AMER-ICAN INDIAN	ASIAN OR PACIFIC ISLANDER[2] [3]	OTHER[4]	UNKNOWN
1970	171,667	143,871	26,957	299	356	74	110
1971	162,244	134,165	27,245	313	373	40	108
1972	146,854	119,787	26,215	316	366	64	106
1973	141,550	114,878	25,741	302	288	144	197
1974	137,414	112,474	23.328	270	310	194	838
1975	133,931	109,718	23,224	294	331	184	180
1976	131,378	107,907	22,349	368	390	188	176
1977	138,416	114,042	23,195	431	365	221	162
1978	138,802	114,217	23,025	377	998	7	178
1979	144,452	118,671	24,010	435	1,117	13	206
1980	145,162	119,103	24,127	481	1,230	32	189
1981	140,579	115,972	22,705	526	1,256	16	104
1982	137,950	113,868	22.270	488	1.224	17	83
1983	133,026	109,335	21,932	490	1,154	25	90
1984	135,782	110,418	23,005	780	1,462	46	71
1985	138,052	112,994	22,659	748	1,486	52	113

[1] Coding changes initiated in 1984 resulted in a net decrease of 0.7 and 0.1 percent of the infants coded to the races White and Black respectively. This change resulted in an increase in the number of infants coded to races other than White or Black in 1984.

[2] Persons of Spanish or of Mexican-American descent are included with White. Indians from India were counted as "White" from 1970-1977 and with "Other Asian or Pacific Islander" since 1978.

[3] Includes Chinese, Japanese, Hawaiian, Filipino, and other Asian or Pacific Islander.

[4] Includes Koreans for 1973-1977. Koreans are included in "Other Asian or Pacific Islander" for other years.

Table 1.5
Crude Birth Rates and Fertility Rates by Race[1], Michigan Residents, 1970-1985

CRUDE BIRTH RATE		YEAR	FERTILITY RATE	
WHITE RACE	ALL OTHER RACES		WHITE RACE	ALL OTHER RACES
18.4	26.6	1970	88.0	117.1
17.0	25.9	1971	80.2	112.5
15.1	24.4	1972	70.6	104.5
14.5	23.4	1973	66.7	99.1
14.1	20.8	1974	64.5	87.3
13.8	20.4	1975	62.4	84.6
13.6	19.4	1976	60.7	79.7
14.4	19.7	1977	63.3	80.3
14.4	19.4	1978	62.6	78.5
14.9	19.9	1979	64.2	79.8
15.0	19.8	1980	63.9	79.1
14.6	18.4	1981	61.5	72.6
14.5	17.8	1982	60.2	69.8
14.0	17.4	1983	57.8	67.6
14.3	18.5	1984	58.4	71.5
14.6	18.2	1985	59.7	70.2
-20.7	-31.6	Percent Change, 1970-1985	-32.2	-40.1

[1] Births of unknown race are excluded.

AGE OF MOTHER

In 1985 41.9 percent of all live births were to women less than 25 years of age. Only 0.6 percent occurred to women 40 or more years of age. The median age of mothers was 26 years. Mothers of other than white infants were younger (median 24 years) than mothers of white children (median 26 years). Approximately 53.4 percent of the other than white infants were born to women aged 24 or less compared to 39.3 percent of the white infants. This differential is the result of the relatively large percentage of other than white live births to women at ages below 20 (Table 1.6).

The total number of live births increased by 3.1 percent between 1975 and 1985 (Table 1.7). The largest relative decrease in the number of live births occurred to women under age 20. There was a 33.4 percent decrease in the number of births. The age group 20-24 experienced a 15.5 percent decline. The number of live births to women 25-29 was 17.4 percent higher in 1985 than in 1975, while there was a 71.2 and 60.6 percent increase in number of live births to women 30-34 years and 35-39 years of age respectively over the decade. There was a 14.4 percent decrease in the number of live births to women 40 years of age or older.

Table 1.7 also provides the age distribution of the childbearing population in 1975 and 1985. Between these years the number of women aged 15-44 years increased by 12.6 percent. The largest relative increase in population occurred in the age group 30-34, the age group with the greatest increase in live births between 1975 and 1985. The only groups to experience a population decline were those under 20 and those at ages 40-44 years.

AGE-SPECIFIC LIVE BIRTH RATES

As displayed in Table 1.8, a substantial reduction in the age-specific live birth rates for Michigan females under 30 and over 39 years of age has occurred since 1975. The greatest relative decreases in rates between 1975 and 1985 were for women under age 25. The live birth rates for women 30-34 and 35-39 years old in 1985 were 31.1 and 31.6 percent above the rates for these age groups in 1975.

Figure 1.4 displays age-specific live birth rates for the period 1970-1985. Live birth rates in all age groups dropped between 1970 and 1976. For women under 20 years the rate continued to decline throughout the years 1976-1983. The rate increased slightly in 1984 and declined again in 1985. The live birth rates for women between 20 and 29 years of age remained stable into the 1980's. The rates for women in the age groups 20-24 declined further while the rates for women 25-29 declined and increased slightly. Between 1976 and 1985 live birth rates for women in the age groups 30-34 and 35-39 increased by 37.5 and 55.3 percent, respectively. 1985 rates were higher than 1984 rates for women 25 and over and lower for women 24 or younger.

In 1970, women aged 20-24 had the highest live birth rate of any age group, 14.3 percent higher than that of women aged 25-29. In 1976 and 1979 through 1985 the live birth rate of women in the 25-29 year age group was above that of women aged 20-24. In 1985 the rate for the 25-29 year age group was 22.5 percent higher (Table 4.4).

Table 1.8 displays age-specific live birth rates for white women and women of all other races for the years 1975 and 1985. Generally, rates for other than white women between 20 and 24 years of age were above those for white women. However, the live

Table 1.6
Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Under 15 Years	352	0.3	108	0.1	243	1.0	1	*
15-19 Years	16,279	11.8	10,945	9.7	5,328	21.4	6	5.3
20-24 Years	41,125	29.8	33,357	29.5	7,739	31.0	29	25.7
25-29 Years	47,049	34.1	40,458	35.8	6,558	26.3	33	29.2
30-34 Years	25,491	18.5	21,816	19.3	3,651	14.6	24	21.2
35-39 Years	6,864	5.0	5,602	5.0	1,246	5.0	16	14.2
40 or More Years	887	0.6	705	0.6	179	0.7	3	*
Not Stated	5	0.0	3	*	1	*	1	*
Total	138,052	100.0	112,994	100.0	24,945	100.0	113	100.0
Median Age at Last Birthday	26	000	26	000	24	000	27	000

Table 1.7
Live Births and Population of Women by Age
Michigan Residents, 1975 and 1985

AGE GROUP	LIVE BIRTHS			POPULATION ESTIMATES		
	1975	1985	PERCENT CHANGE	1975	1985	PERCENT CHANGE
Under 20 Years[1]	24,972	16,631	-33.4	474,117	433,800	-8.5
20 - 24 Years	48,675	41,125	-15.5	409,841	470,639	+14.8
25 - 29 Years	40,061	47,049	+17.4	342,856	439,339	+28.1
30 - 34 Years	14,891	25,491	+71.2	302,424	394,915	+30.6
35 - 39 Years	4,273	6,864	+60.6	241,046	294,729	+22.3
40 and Over[2]	1,036	887	-14.4	227,118	215,221	-5.2
All Ages[3]	133,931	138,052	+3.1	1,997,402	2,248,643	+12.6

[1] Population shown is for females 15-19.

[2] Population shown is for females 40-44.

[3] Population shown is for females 15-44. Live births with age not stated are included only in the total.

Table 1.8
Age-Specific Live Birth Rates by Race, Michigan Residents, 1975 and 1985

AGE GROUP	RACE[1]								
	TOTAL			WHITE			ALL OTHER[1]		
	1975	1985	PERCENT CHANGE IN RATE	1975	1985	PERCENT CHANGE IN RATE	1975	1985	PERCENT CHANGE IN RATE
Under 20[2] Years	52.7	38.3	-27.3	43.0	30.3	-29.5	108.6	80.3	-26.1
20-24 Years	118.8	87.4	-26.4	114.1	84.2	-26.2	147.5	104.1	-29.4
25-29 Years	116.8	107.1	-8.3	117.3	110.9	-5.5	114.1	88.0	-22.9
30-34 Years	49.2	64.5	+31.1	48.5	66.0	+36.1	53.7	56.7	+5.6
35-39 Years	17.7	23.3	+31.6	16.6	22.2	+33.7	25.6	29.4	+14.8
40 or Over[3]	4.6	4.1	-10.9	4.1	3.8	-7.3	8.0	5.9	-26.3
Total[4]	67.1	61.4	-8.5	63.4	59.7	-5.8	90.5	70.2	-22.4

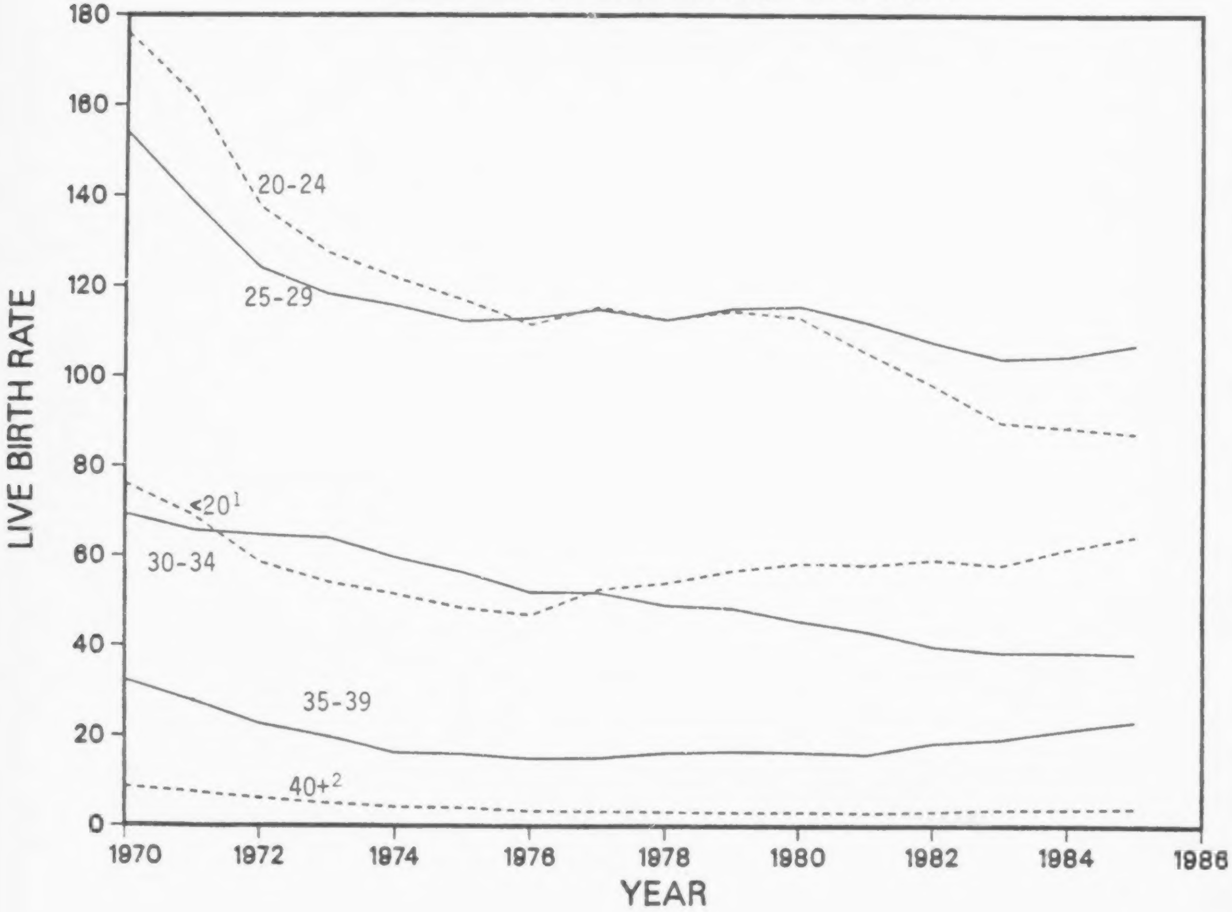
[1] Data on race not stated are included only in the total columns.

[2] Age-specific birth rates for under 20 are based on female population 15-19.

[3] Age-specific birth rates for 40 and over are based on female population 40-44.

[4] Total birth rates (fertility rates) are based on female population 15-44.

FIGURE 1.4
AGE-SPECIFIC LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1970-1985



[1] Based on live births to women under 20 and population of females 15-19.
[2] Based on live births to women 40 or over and population of females 40-44.

birth rate for white women between 25 and 29 years exceeded that for other than white women by 2.8 and 26.0 percent, respectively, in 1975 and 1985. In 1985 the rate for white women between 30 and 34 years also exceeded that for their other than white counterparts by 16.4 percent. Live birth rates declined over these ten years across all ages for both racial categories excepting women of both racial groups aged 30-39. The largest relative decreases in these rates were experienced by white women under 20 years of age and by other than white women between 20 and 24 years of age.

BIRTH ORDER

The percent of live births which are first-order births is displayed in Figure 1.5 for Michigan and the United States for the period since 1960. Between 1960 and 1970, the percent of first-order births increased from 22.9 to 37.4 in Michigan and by 1980 the percent had increased to 42.4. Then the percentage steadily decreased to 40.1 in 1985, the lowest level since 1972. The actual number of first births declined by 15.9 percent between 1970 and 1976, increased between 1976 and 1980 by 13.9 percent and decreased by 11.8 percent between 1980 and 1983. By 1985 the number of first births increased by 2.0 percent. The trend in first births has been similar for the United States (Table 1.9).

The distribution of Michigan resident live births by live birth order is displayed in Tables 1.10 and 1.11 for the years 1975 and 1985. The shift in recent years toward smaller families is continuing. First-and second-order live births comprised 73.4 percent of all live births in 1975 and 73.8 percent in 1985. On the other hand, 11.3 percent of all live births in 1975 were fourth or higher order live births. In 1985 the figure was 9.3 percent. The greatest relative decline occurred in fifth or higher order live births. These constituted 5.1 percent of all live births in 1975 compared to 3.5 percent in 1985.

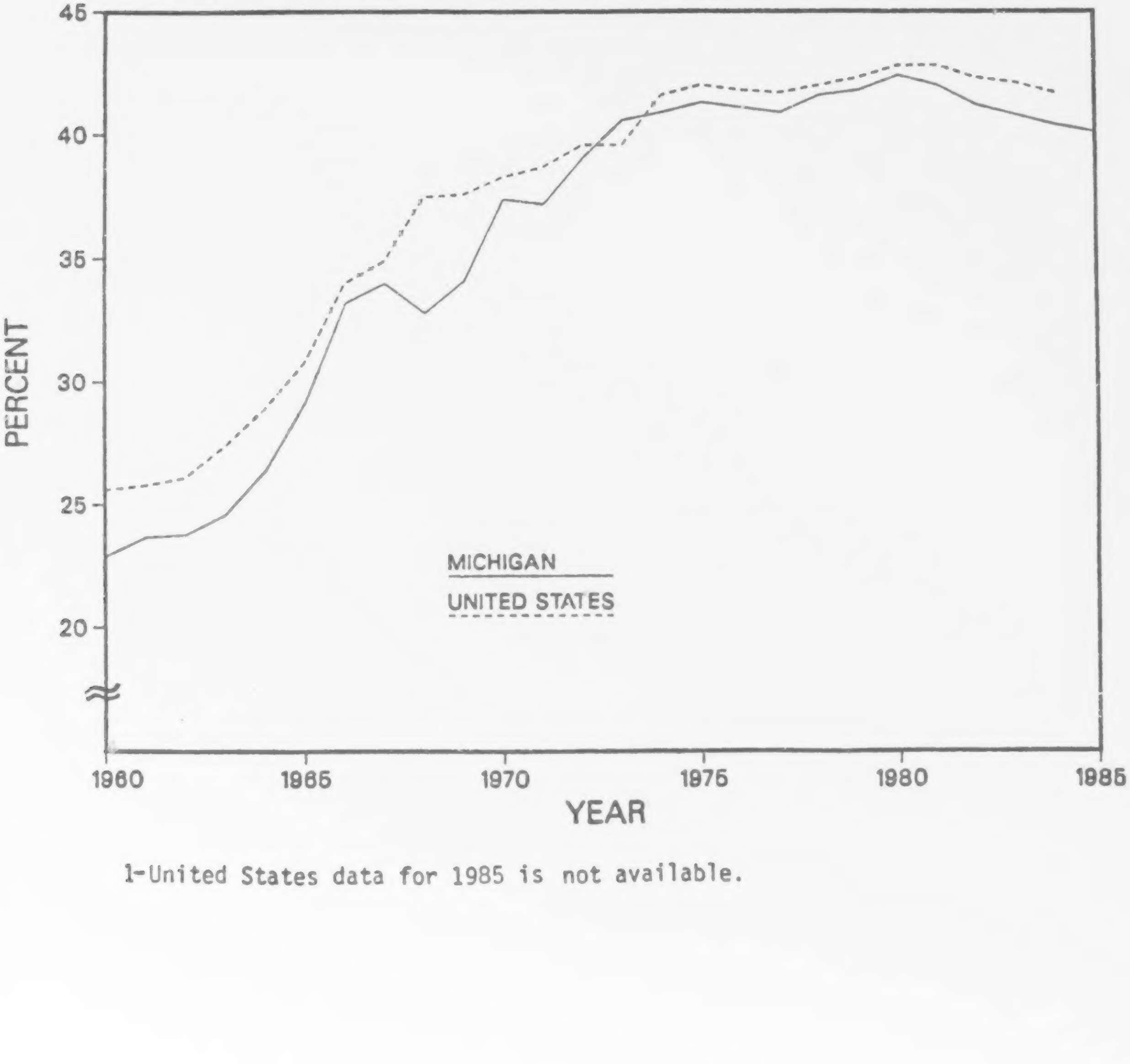
This shift is more apparent within each maternal age group where first-order births comprised a greater percent of all live births in 1985 than in 1975, with the shift generally increasing with the advancing age of the mother. The percent of second order births increased for women 30 or older, decreased for women in each age group under 25 and was about the same for women 25-29 years of age. Between 1975 and 1985 the percent of third or higher order births decreased for women in the age groups 25-29 and 40 or older, increased for women 30 to 39 years of age and was about the same for women under 25. First and second order births comprised 36.2 percent of all births to women 30-39 years of age in 1975 and 54.4 percent in 1985. Similarly 79.9 percent of all live births to women under 20 years of age were first births in 1985, compared to 78.9 percent in 1975. While the numbers of births have declined for women under 25 across all birth orders, first, second, and third order births rose at ages 25 and over, and fourth order births rose at ages 30 and over.

The median age of mothers having their first child increased from 21 to 23 between 1975 and 1985. For mothers having their second child, the median age increased from 24 to 26. The median ages for mothers increased for all birth orders between 1975 and 1985, except fifth order births or greater, which decreased from 33 to 31.

First births to women 25 years of age or older comprised 24.0 percent of all first births in 1975 and 40.1 percent in 1985. Similarly, second order births to women 25 years or older increased from 46.5 percent of all second order births in 1975 to 62.4 percent in 1985. This change in mother's age at birth is reflective of the emergence of the 25-29 year age group as the group with the highest age-specific birth rate (Table 1.8).

FIGURE 1.5

FIRST BIRTHS AS A PERCENTAGE OF ALL LIVE BIRTHS, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1985[1]



1-United States data for 1985 is not available.

Table 1.9
First Births, Michigan and United States Residents, Selected Years, 1960-1985

UNITED STATES		YEAR	MICHIGAN	
FIRST BIRTHS	PERCENT OF ALL BIRTHS		FIRST BIRTHS	PERCENT OF ALL BIRTHS
1,090,152	25.6	1960	44,711	22.9
1,157,386	30.8	1965	48,660	29.2
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9
1,401,491	42.0	1978	57,767	41.6
1,479,260	42.3	1979	60,424	41.8
1,545,604	42.8	1980	61,516	42.4
1,553,665	42.8	1981	59,105	42.0
1,555,627	42.3	1982	56,879	41.2
1,530,639	42.1	1983	54,271	40.8
1,529,905	41.7	1984	54,907	40.4
---	---	1985	55,373	40.1

Table 1.10
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1975

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	19,707	22,319	10,857	2,393	60	12	55,348	21
Second Birth	4,414	18,404	15,221	4,551	100	7	42,697	24
Third Birth	600	5,822	8,805	4,767	106	2	20,102	27
Fourth Birth	67	1,476	3,310	3,251	119	1	8,224	28
Fifth Birth or Greater	6	415	1,688	4,093	643	1	6,846	33
Not Stated	178	239	180	109	8	0	714	23
All Birth Orders	24,972	48,675	40,061	19,164	1,036	23	133,931	24

Table 1.11
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1985

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	13,282	19,880	15,555	6,564	90	2	55,373	23
Second Birth	2,859	14,609	17,823	11,032	133	2	46,458	26
Third Birth	403	4,939	9,267	7,997	166	0	22,772	28
Fourth Birth	49	1,188	2,893	3,725	146	0	8,001	29
Fifth Birth or Greater	13	348	1,287	2,867	344	0	4,859	31
Not Stated	25	161	224	170	8	1	589	27
All Birth Orders	16,631	41,125	47,049	32,355	887	5	138,052	26

INTERPREGNANCY TIME PERIOD

The distributions of live births by interpregnancy time period were similar in 1975 and 1985. In each year, about 30 percent of the births to women with prior deliveries occurred one to two years after the most recent pregnancy termination. Another quarter of the births had spacings of two to three years. In both 1975 and 1985 fewer than 4 percent of the births occurred less than a year after the termination of the most recent prior pregnancy (Table 1.12).

In 1985 women having live births whose most recent prior termination was a fetal death had a median time span of 2 years between their previous termination and a live birth (Table 1.13). This compares to a median of 2 years 9 months for prior live births. Although 1 to 2 years was the modal time span for both groups, the percent of women with prior fetal deaths in this interval (39.1) was much larger than that for women with prior live births (27.3). The greatest relative difference was associated with time spans of less than one year. A spacing of less than one year was observed for 10.0 percent of all women reporting their most recent prior pregnancy as a fetal death. This compares to 1.6 percent of all women reporting their most recent prior pregnancy as a live birth.

PRENATAL CARE

The most common month of pregnancy in which women first obtain prenatal care is the second month. In 1985 42.1 percent of all women having live births initiated care during the second month. The median number of prenatal visits was 12, and 62.2 percent of all live births were to women receiving 10-14 prenatal visits. Table 1.14 indicates the relationship between the month of pregnancy prenatal care began and the number of prenatal visits. For births in which the mother began receiving care in the first month, the median number of visits was 13. The median number of visits is lower for women where prenatal care began later in the pregnancy.

The proportion of live births to women who initially obtained prenatal care in the first trimester of pregnancy was 81.0 percent in 1985. This percent has increased steadily since 1970 when the figure was 69.0 (Figure 1.6).

There were also small but steady increases in the percentage of births to women receiving care prior to the sixth month of pregnancy over the period 1970-1975. In 1970, 86.0 percent of all live births were to women who received care prior to the sixth month of pregnancy. By 1975, this had risen to 91.6 percent. The figure remained at that level through 1981. By 1984 and again in 1985 the percent of all women who received care before the sixth month was 93.9 percent.

The proportion of births to women receiving early prenatal care varied considerably by race of infant and age of mother (Table 1.15). In 1985, 83.2 percent of white infants compared to 71.4 percent of other than white infants were born to mothers who began their prenatal care in the first trimester. Over 87 percent of the women 25 through 34 years of age sought care promptly. The proportion of births to women receiving early prenatal care declined as maternal age increased or decreased, falling to 76.8 percent for women 40 years or over. Six in 10 (60.0 percent) mothers 15-19 years of age received care early, while only 34.1 percent of mothers under age 15 received care during the first trimester. Similar patterns in this proportion by age of mother are evident for white and other than white infants.

Table 1.12
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination, Michigan Residents, 1975 and 1985[2]

TIME SPAN IN YEARS	1975		1985	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	81,811	100.0	91,010	100.0
Less Than One	2,747	3.4	3,177	3.5
1 < 2	23,196	28.4	27,304	30.0
2 < 3	19,741	24.1	22,246	24.4
3 < 5	21,894	26.8	21,832	24.0
5 or More . .	14,233	17.4	16,451	18.1
Median . . . Time Span . .	2 Years 8 Months	000	2 Years 7 Months	000

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[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to statistics published in prior years.

Table 1.13

Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[2], Michigan Residents, 1985[3]

TIME SPAN IN YEARS	TOTAL		PRIOR NON-LIVE BIRTH		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	91,010	100.0	20,720	100.0	70,290	100.0
Less Than One	3,177	3.5	2,077	10.0	1,100	1.6
1 < 2	27,304	30.0	8,108	39.1	19,196	27.3
2 < 3	22,246	24.4	3,506	16.9	18,740	26.7
3 < 5	21,832	24.0	3,468	16.7	18,364	26.1
5 or More	16,451	18.1	3,561	17.2	12,890	18.3
Median Time Span	2 Years 7 Months	000	2 Years 0 Months	000	2 Years 9 Months	000

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] Fetal death as defined for the pregnancy history on the birth record is a fetal death of any gestational age.

[3] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to statistics published in prior years.

Table 1.14

Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1985

MONTH CARE BEGAN	NUMBER OF VISITS								
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN	MEDIAN NUMBER OF VISITS
Total	138,052	865	3,429	24,467	85,876	16,095	3,771	3,549	12
First	19,709	-	101	1,322	11,869	5,091	1,066	260	13
Second	58,179	-	321	5,756	41,844	7,593	1,704	961	12
Third	33,976	-	379	6,229	23,312	2,548	719	789	11
Fourth	11,821	-	373	4,439	5,937	585	186	301	10
Fifth	5,951	-	433	3,155	1,940	177	68	178	8
Sixth	3,292	-	491	1,974	654	81	19	73	7
Seventh	1,893	-	522	1,136	173	8	6	48	6
Eighth	936	-	528	343	41	2	1	21	4
Ninth	271	-	223	26	11	2	-	9	2
No Care	865	865	-	-	-	-	-	-	-
Unknown	1,159	-	58	87	95	8	2	909	8

FIGURE 1.6
PERCENT OF WOMEN HAVING LIVE BIRTHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1985

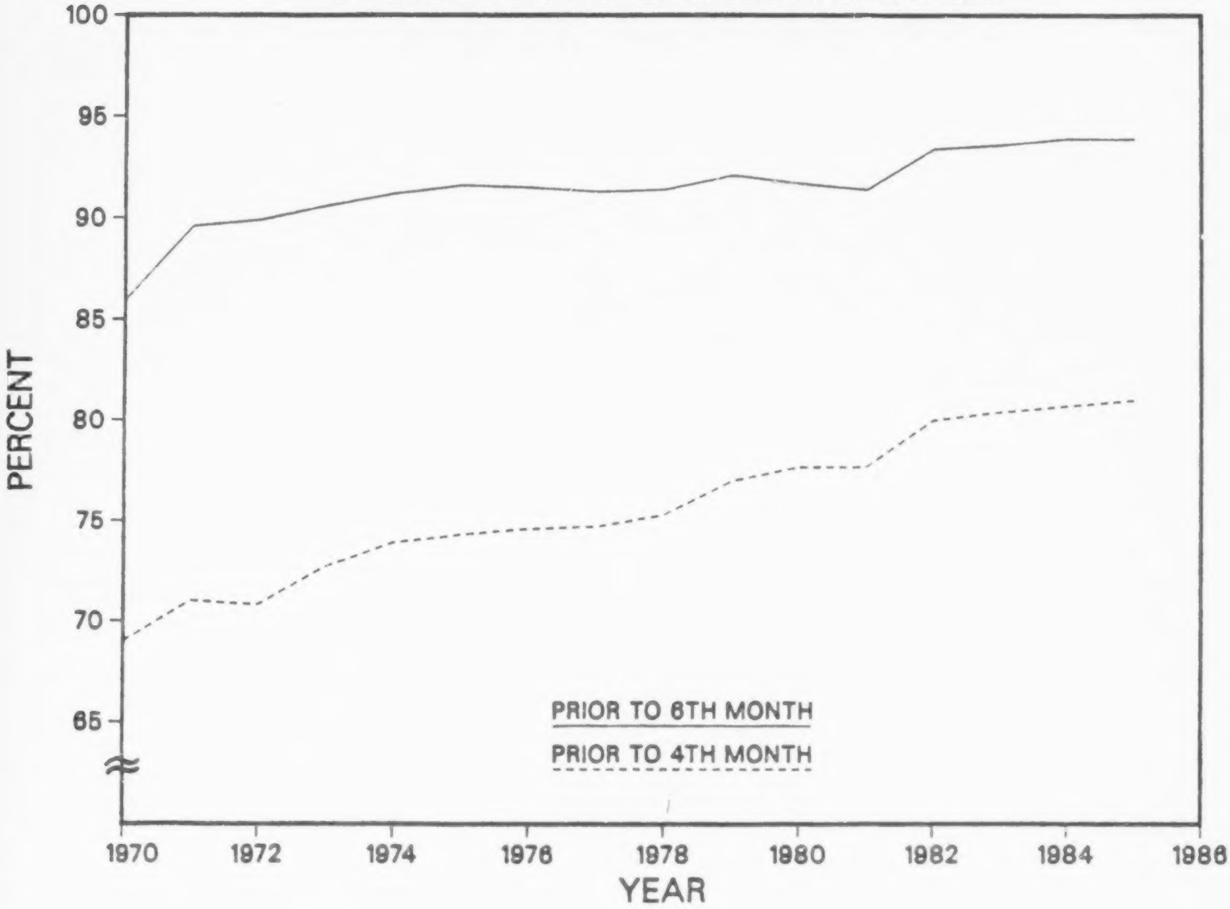

Table 1.15
Numbers and Percents of Live Births with Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Under 15 Years........	120	34.1	36	33.3	83	34.2	1	*
15-19 Years...........	9,763	60.0	6,790	62.0	2,970	55.7	3	*
20-24 Years...........	31,883	77.5	26,429	79.2	5,449	70.4	5	17.2
25-29 Years...........	41,021	87.2	35,828	88.6	5,188	79.1	5	15.2
30-34 Years...........	22,527	88.4	19,564	89.7	2,959	81.0	4	*
35-39 Years...........	5,867	85.5	4,848	86.5	1,016	81.5	3	*
40 Years or Over......	681	76.8	546	77.4	135	75.4	-	*
Not Stated............	2	*	1	*	1	*	-	*
Total.................	111,864	81.0	94,042	83.2	17,801	71.4	21	18.6

[1] Percent denominators obtained from Table 1.6.

The time prenatal care began varied with live birth order (Table 1.16). The proportion of live births to women who began care during the first trimester was highest for second order live births (84.0 percent) and lowest for fifth or higher order births (67.4 percent). Conversely, the proportion of births to women who began care during the third trimester, or received no care, was lowest (2.1 percent) for second order live births. This figure increased with the number of previous live births. Among fifth order live births 7.7 percent were to women who had received no care by the beginning of the 7th month of the pregnancy.

The proportion of live births to mothers having ten or more prenatal visits was 76.6 percent in 1985, compared to 70.2 percent in 1980. This statistic varied considerably by race. While mothers of 78.6 percent of white infants had at least ten prenatal visits, the percent was only 67.5 for other than white infants (Table 1.17). The median number of prenatal visits was 12 for mothers of both white children and other than white children (excluding those having an unknown number of visits). The mean number of prenatal visits was 11.6 for mothers of white infants, 5.5 percent higher than the mean of 11.0 visits for mothers of infants of other races.

In 1985, 865 resident live births, or 6.3 of every 1,000, occurred with the mother having had no prenatal care. This figure includes only those where it was specified that the mother received no prenatal care. The comparative statistics were 6.5 in 1980 and 11.8 in 1971. Those who received no prenatal care were for the most part younger mothers (median age of 22). Also, the lack of prenatal care is disproportionately high among mothers of other than white infants. The ratio of live births in which the mother received no prenatal care to the total number of live births was 3.7 times as large for other than white infants as for white infants in 1985 (Table 1.18).

A measure of the quality of care has been developed by Dr. D. W. Kessner which combines information on the month prenatal care began, the gestational age at birth and the number of prenatal visits. Adequate prenatal care is defined as care which began within the first trimester and which included an average of at least one or two additional prenatal visits per month of gestation depending on the length of gestation. Intermediate care is defined as care which began during the second trimester of the pregnancy with corresponding fewer visits or which began during the first trimester but there were a few less visits than would be appropriate for the length of gestation. Finally inadequate care is defined as care which began during the third trimester or no care was received or care began during the first or second trimester but less than five visits occurred if the length of gestation was 34 weeks or more or even fewer visits if the length was less than 34 weeks.

Adequate prenatal care was obtained by mother's of 73.1 percent of the live births (Table 1.19). The proportion of live births to mothers of white infants who received adequate care (75.5 percent) was higher than the corresponding proportion for mothers of other than white infants (62.6 percent). Inadequate care was received by the mothers of 6.1 percent of all live births. The proportions of live births to mothers who received inadequate care were 5.2 percent for white infants and 9.9 percent for other than white infants.

Table 1.16
Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1985

MONTH OF PREGNANCY CARE BEGAN	LIVE BIRTH ORDER						
	TOTAL	FIRST	SECOND	THIRD	FOURTH	FIFTH OR GREATER	NOT STATED
1st Month . .	19,709	7,935	7,019	3,206	917	578	54
2nd Month . .	58,179	23,204	20,695	9,515	3,050	1,538	177
3rd Month . .	33,976	13,373	11,321	5,785	2,190	1,160	147
4th Month . .	11,821	4,847	3,514	2,001	826	593	40
5th Month . .	5,951	2,600	1,639	937	401	348	26
6th Month . .	3,292	1,458	921	496	205	200	12
7th Month . .	1,893	794	489	311	144	147	8
8th Month . .	936	371	241	157	91	71	5
9th Month . .	271	94	73	53	20	30	1
No Care . . .	865	317	195	130	88	125	10
Not Stated . .	1,159	380	351	181	69	69	109
Total	138,052	55,373	46,458	22,772	8,001	4,859	589
Percentage Beginning Care in First Trimester . .	81.0	80.4	84.0	81.3	77.0	67.4	64.2
Percentage Without Care During First Six Months . .	2.9	2.8	2.1	2.9	4.3	7.7	4.1

Table 1.17
Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1985

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	865	0.6	478	0.4	387	1.6	-	-
1-4	3,429	2.5	2,089	1.8	1,339	5.4	1	0.9
5-9	24,467	17.7	18,735	16.6	5,725	23.0	7	6.2
10-14	85,876	62.2	72,774	64.4	13,085	52.5	17	15.0
15-19	16,095	11.7	13,142	11.6	2,950	11.8	3	2.7
20 or Over	3,771	2.7	2,978	2.6	791	3.2	2	1.8
Not Stated	3,549	2.6	2,798	2.5	668	2.7	83	73.5
Total	138,052	100.0	112,994	100.0	24,945	100.0	113	100.0
Median Number of Visits	12	000	12	000	12	000	12	000
Mean Number of Visits	11.5	000	11.6	000	11.0	000	11.8	000

Table 1.18
Live Births with No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]
Under 15 years........	15	42.6	2	18.5	13	53.5	-	*
15-19 Years...........	265	16.3	144	13.2	121	22.7	-	*
20-24 Years...........	257	6.2	144	4.3	113	14.6	-	*
25-29 Years...........	170	3.6	99	2.4	71	10.8	-	*
30-39 Years	147	4.5	81	3.0	66	13.5	-	*
40 Years or Over.....	11	12.4	8	11.3	3	16.8	-	*
Total.................	865	6.3	478	4.2	387	15.5	-	*
Median Age at Last Birthday..............	22	000	22	000	22	000	*	000

[1] Ratio per 1,000 live births. Ratio denominator obtained from Table 1.6.

Table 1.19
Number and Percent of Live Births
by Level of Prenatal Care and Race of Child, Michigan Residents, 1985

LEVEL OF PRENATAL CARE (KESSNER INDEX[1])	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Adequate	100,899	73.1	85,274	75.5	15,605	62.6	20	17.7
Intermediate	26,066	18.9	19,716	17.4	6,345	25.4	5	4.4
Inadequate	8,391	6.1	5,912	5.2	2,475	9.9	4	3.5
Unknown	2,696	2.0	2,092	1.9	520	2.1	84	74.3
Total	138,052	100.0	112,994	100.0	24,945	100.0	113	100.0

[1] The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies, fewer prenatal visits constitute adequate care).

The proportions of live births to mothers who began prenatal care during the first trimester but failed to receive adequate care were respectively 7.9 percent for all infants, 7.7 percent for white infants and 8.8 percent for other than white infants (Tables 1.15 and 1.19). This means that approximately 10 percent of the mothers who initiate prenatal care most promptly do not receive the minimum number of visits they should during the time they are pregnant. Considered as a proportion of the mothers who did not receive adequate care, 29.4 percent of the mothers not receiving adequate care initiated care within the recommended first trimester but did not continue to receive the appropriate minimum number of prenatal care visits.

BIRTH WEIGHT

The mean weight for all live births was 3,367 grams or approximately 7 pounds 6 ounces. The median weight was 3,402 grams or about 7 pounds 8 ounces (Table 1.20).

A subgroup of major importance when analyzing birth weight trends is the category of infants weighing less than 2,500 grams (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality in their first year of life than heavier infants. In 1985, 68 of every 1,000 live births weighed less than 2,500 grams (Table 1.21).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount of prenatal care the mother has received. Very young mothers and other than white mothers have fewer prenatal visits; other than white women also have higher birth rates in the younger age groups, etc. Tables 1.21 and 1.22 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (136.4) was the group of mothers under 15 years of age. This ratio was lower for each succeeding age group through age group 25-29 (60.6) then increased for the older age groups to 76.7 per 1,000 live births for mothers 40 years or older (Table 1.21).

When low birth weight ratios are examined by the number of the mother's prenatal visits even more striking variations are evident. The low birth weight ratio for the highest risk group was about eight times that of the group with the lowest ratio. The low birth weight ratio was highest when the mother had no prenatal care at 322.5. The ratio declined as the number of prenatal visits increased through 15-19 visits, where the ratio was 39.5. The low birth weight ratio was 68.7 for mothers with 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy (Table 1.22). For low birth weight infants the median number of the mother's prenatal visits was 9, compared to 12 for all infants. The mean number of visits for mothers of low birth weight infants was 9.4, 18.3 percent less than the mean of 11.5 for mothers of all infants. As low birth weight infants are more likely to have been born prematurely, the shorter prenatal period results in a reduction of the potential length of time for prenatal care.

Table 1.20
Live Births by Birth Weight and Race, Michigan Residents, 1985

WEIGHT AT BIRTH	RACE			
	TOTAL	WHITE	ALL OTHER	NOT STATED
500 Grams or Less	289	140	149	-
501-1,000 Grams	673	406	267	-
1,001-1,500 Grams	907	564	343	-
1,501-2,000 Grams	1,740	1,153	586	1
2,001-2,499[1] Grams	5,794	3,912	1,877	5
2,500-3,000 Grams	21,026	15,284	5,722	20
3,001-3,500 Grams	49,167	39,712	9,418	37
3,501-4,000 Grams	41,733	36,478	5,218	37
4,001-4,500 Grams	13,760	12,609	1,140	11
4,501 Grams or More	2,927	2,709	217	1
Not Stated	36	27	8	1
Total	138,052	112,994	24,945	113
Mean Weight in Grams	3,367.4	3,422.7	3,116.9	3,403.1
Median Weight in Grams	3,402.0	3,459.0	3,175.0	3,430.0

[1] In order to conform to national standards, the definition of low birthweight was changed in 1984 to less than 2500 grams.

Table 1.21
Low Weight[1] Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
Under 15 Years . .	48	136.4	14	129.6	34	139.9	-	*
15-19 Years . . .	1,542	94.7	866	79.1	675	126.7	1	*
20-24 Years . . .	2,833	68.9	1,841	55.2	991	128.1	1	*
25-29 Years . . .	2,853	60.6	2,002	49.5	849	129.5	2	*
30-39 Years . . .	2,059	63.6	1,409	51.4	648	132.3	2	*
40 Years or Over .	68	76.7	43	61.0	25	139.7	-	*
Not Stated	-	*	-	*	-	*	-	*
Total	9,403	68.1	6,175	54.6	3,222	129.2	6	53.1
Median Age at Last Birthday	25	000	25	000	24	000	29	000

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[1] Less than 2,500 grams.

[2] Ratio denominators obtained from Table 1.6.

Table 1.22
Low Weight[1] Live Births and Low Birth Weight Ratios by Number of Prenatal Visits and Race of Child, Michigan Residents, 1985

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
None	279	322.5	120	251.0	159	410.9	-	*
1-4	889	259.3	448	214.5	441	329.4	-	*
5-9	3,373	137.9	2,286	122.0	1,087	189.9	-	*
10-14	3,619	42.3	2,493	34.3	1,136	86.8	-	*
15-19	636	39.5	431	32.8	205	69.5	-	*
20 or Over	259	68.7	171	57.4	88	111.3	-	*
Not Stated	338	95.2	226	80.8	106	158.7	6	*
Total	9,403	68.1	6,175	54.6	3,222	129.2	6	53.1
Median Number of Visits	9	000	10	000	9	000	*	000
Mean Number of Visits	9.4	000	9.6	000	8.9	000	*	000

[1] Less than 2500 grams.

[2] Ratio denominators obtained from Table 1.17.

Other than white infants have a substantially lower mean and median birth weight than white infants (Table 1.20). The low birth weight ratio for other than white infants was 129.2 compared with 54.6 for white infants (Table 1.21). Other than white infants and white infants show similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits (Table 1.22). The low birth weight ratio for other than white infants varied from a high of 410.9 where the mother had no care to a low of 69.5 where the mother had 15 to 19 or more visits. The ratio for white infants varied from a high of 251.0 where the mother had no care to a low of 32.8 where the mother had 15 to 19 prenatal visits (Table 1.22). The greatest relative difference between the low birth weight ratios was observed to births with 10-14 visits. The ratio for other than white infants was 2.5 times the ratio for white infants. Overall, the low birth weight ratio for other than white infants was 2.4 times the ratio for white infants. This high overall difference in the low birth weight ratios is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 18.8 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 30.0 percent (Table 1.17).

Examination of Table 1.21 reveals that the low birth weight ratios for other than white infants vary less by age of mother than those for white infants. For white infants the ratio associated with mothers under 15 years of age (129.6) is over two and a half times that of mothers in the 25-29 year age group (49.5). For other than white infants the differential between the age groups with the highest and lowest ratios is about 10 percent.

The low birth weight ratio varies by adequacy of prenatal care as indicated by the Kessner Index (Table 1.23). The ratio is 1.9 times higher for white infants born to mothers with inadequate care than to mothers with adequate prenatal care. For other than white infants the low birth weight ratio is 1.8 times higher when the mother received inadequate care rather than adequate care. The ratio is 1.5 times higher for white infants born to woman with intermediate care than for white infants born to woman with adequate care. For other than white infants the ratio is 1.3 times higher when the mother receives an intermediate level of care. The low birth weight ratio is 2.3 times higher for other than white infants born to women with adequate care than for the corresponding white infants. At birth about 11 percent of the other than white infants born to women with adequate care weighed less than 2500 grams.

Figure 1.7 displays the low birth weight ratio for Michigan and the United States over the last twenty-six years. In 1960 this ratio was 72.0 for Michigan. Between 1960 and 1966 the ratio increased, reaching a high for the 26 year period in 1966 (79.8). Since that time the ratio has generally declined. The ratio for 1985 was 68.1, the lowest rate since 1960. The pattern for the United States has been similar. The ratio increased from 76.9 in 1960 to 83.3 in 1966, and has since declined. In 1984 the low birth weight ratio for the nation was 67.1. The ratio for the United States was above that for Michigan each year from 1960 through 1970. Since then the ratio for the nation has been the same or lower than that of Michigan.

Table 1.23
Low Weight[1] Live Births and Low Birth Weight Ratios by Level of Prenatal Care and Race of Child, Michigan Residents, 1985

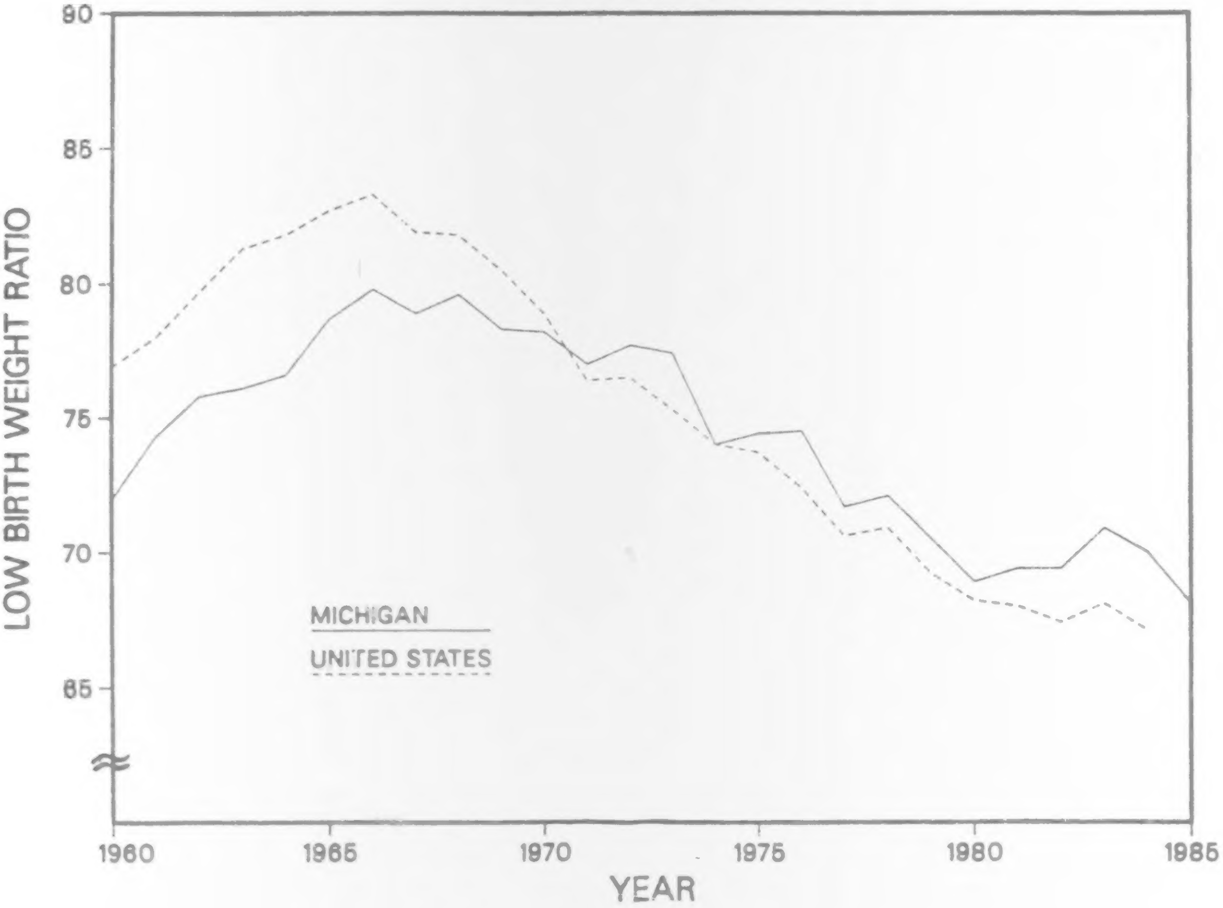
LEVEL OF PRENATAL CARE (KESSNER INDEX[2])	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[3]	NUMBER	RATIO[3]	NUMBER	RATIO[3]	NUMBER	RATIO[3]
Adequate	5,724	56.7	4,009	47.0	1,715	109.9	-	-
Intermediate	2,337	89.7	1,414	71.7	923	145.5	-	-
Inadequate	1,010	120.4	521	88.1	489	197.6	-	-
Unknown	332	123.1	231	110.4	35	182.7	6	71.4
Total	9,403	68.1	6,175	54.6	3,222	129.2	6	53.1

[1] Less than 2500 grams.

[2] The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies, fewer prenatal visits constitute adequate care)

[3] Ratio denominators obtained from Table 1.17

FIGURE 1.7
LOW BIRTH WEIGHT[1] RATIO, MICHIGAN AND UNITED STATES[2] RESIDENTS, 1960-1985



[1] Prior to 1984, low birth weight was defined as 2500 grams or less. Starting with data year 1984, low birth weight is defined as less than 2500 grams in order to conform to national standards.

[2] United States data for 1985 is not available.

SEX OF INFANT

In 1985 51.6 percent of the infants born to Michigan residents were male. The proportion of males to females varies by race. The numbers of males per 1,000 females were 1,070 for white infants, 1,044 for blacks, 1,084 for American Indians, and 1,127 for infants of all other races (Table 1.24). For all races the low birth weight ratio for females is higher than for males. The ratio of 72.6 for females of all races is 13.8 percent above the corresponding ratio of 63.8 for males.

MOTHER'S EDUCATION

Educational attainment of women having live births in 1985 varied with their age (Table 1.25). Of all Michigan resident live births in 1985. 19.1 percent were to women who had not completed high school. The majority (62.8 percent) of mothers aged less than 20 had not completed high school. The percentage of mothers with fewer than 4 years of high school dropped to 21.8 for those aged 20-24 and to 6.6 for mothers aged 30-34. This percent increased to 8.4 for mothers aged 35-39 and to 15.4 for mothers 40 years or older. Conversely, age of mother varied with the level of education. The median age of the mother was 21 years for those with 1 to 3 years of high school and 30 years for women with 4 or more years of college.

Birth order varies with the mother's education as well as her age (Table 1.26). The first birth ratio (number of first live births per 100 live births) generally decreases with increasing maternal age and within maternal age category increases with educational attainment. The first birth ratio for mothers with 4 or more years of college was 42.7 compared to 39.1 for mothers with 8 or fewer years of education. For live births to women 20-24 years of age who had completed 4 or more years of college, 80.4 percent were to women with no previous live births, while only 24.2 percent of the live births to women of the same age who had completed the eighth grade or less were first births. Mothers with 1 to 3 years of high school had the lowest or second lowest first birth ratio within each age interval taken separately but the second highest total first birth ratio (42.0). This high overall ratio reflects the fact that a relatively large proportion of births to mothers with 1 to 3 years of high school occurred before the age of 20.

CONGENITAL ANOMALIES

One or more congenital anomalies were reported for 972 of the 138,052 resident live births in 1985 (Table 1.27). This translates to a rate of 70.4 per 10,000 live births.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for the coding of reported congenital anomalies. Care should be exercised in making comparisons between the reported incidences of specific types of anomalies for years during which different revisions of the ICD were used to classify anomalies. In addition, the frequency of reporting of specific anomalies is affected by the reporting schedule. Many conditions may not be apparent at the time the birth certificate is completed and filed.

Table 1.24
Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1985

Race	Live Births				Low Weight Live Births			Low Birth Weight Ratios		
	Total[1]	Male	Female	Males per 1,000 Females	Total[1]	Male	Female	Total[1]	Male	Female
Total	138,052	71,226	66,821	1,066	9,403	4,547	4,852	68.1	63.8	72.6
White	112,994	58,395	54,596	1,070	6,175	3,000	3,173	54.6	51.4	58.1
Black	22,659	11,572	11,085	1,044	3,090	1,485	1,603	136.4	128.3	144.6
American Indian	748	389	359	1,084	51	18	33	68.2	46.3	91.9
Other	1,538	815	723	1,127	81	42	39	52.7	51.5	53.9
Unknown	113	55	58	948	6	2	4	53.1	36.4	69.0

[1] Records with sex not stated are included only in total columns.

Table 1.25
Live Births by Age and Education of Mother, Michigan Residents, 1985

AGE OF MOTHER	MOTHER'S EDUCATION							PERCENT WITH AT LEAST HIGH SCHOOL EDUCATION
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE	NOT STATED	
Under 20 Years	16,631	1,161	9,287	5,497	610	2	74	36.7
20-24 Years	41,125	686	8,266	22,448	8,310	1,297	118	77.9
25-29 Years	47,049	547	3,988	22,145	12,756	7,497	116	90.1
30-34 Years	25,491	296	1,395	8,995	7,012	7,706	87	93.0
35-39 Years	6,864	153	426	2,245	1,643	2,370	27	91.2
40 or More Years	887	58	79	330	177	236	7	83.8
Not Stated	5	1	-	3	-	-	1	60.0
Total	138,052	2,902	23,441	61,663	30,508	19,108	430	80.6
Median Age at Last Birthday	26	21	21	25	27	30	26	000

Table 1.26
First Birth Ratios[1] by Age and Education of Mother, Michigan Residents, 1985

AGE OF MOTHER	MOTHER'S EDUCATION					
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE
Under 20 Years	79.9	75.3	77.0	84.2	94.1	*
20-24 Years	48.3	24.2	25.3	49.9	64.2	80.4
25-29 Years	33.1	11.0	11.8	27.7	36.7	55.9
30-34 Years	21.4	7.8	7.7	16.3	21.1	30.5
35 or More Years	15.6	6.2	5.7	11.5	15.3	22.5
Total	40.1	39.1	42.0	38.5	40.5	42.7

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[1] First live births per 100 live births. Births where the mother's age and/or education are not stated are included in the total but are not reallocated to specific age and education categories.

Table 1.27
Congenital Anomalies[1] Reported by Type of Anomaly, Michigan Residents, 1985

TYPE OF ANOMALY	ICD[3] NUMBER	NUMBER OF CONDITIONS[4]	RATE PER 10,000 LIVE BIRTHS
Other congenital anomalies of limbs	755	216	15.6
Certain congenital musculoskeletal deformities	754	129	9.3
Congenital anomalies of genital organs	752	116	8.4
Cleft palate and cleft lip	749	111	8.0
Congenital anomalies of the integument	757	74	5.4
Other congenital musculoskeletal anomalies	756	66	4.8
Other congenital anomalies of heart	746	55	4.0
Other and unspecified congenital anomalies	759	50	3.6
Chromosomal anomalies	758	49	3.5
Other congenital anomalies of nervous system	742	39	2.8
Congenital anomalies of urinary system	753	39	2.8
Congenital anomalies of ear, face and neck	744	34	2.5
Other congenital anomalies of digestive system	751	31	2.2
Spina bifida	741	30	2.2
Congenital anomalies of respiratory system	748	29	2.1
Congenital anomalies of eye	743	29	2.1
Other congenital anomalies of upper alimentary tract	750	27	2.0
Anencephalus and similar anomalies	740	21	1.5
Other congenital anomalies of circulatory system	747	21	1.5
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	21	1.5
At Least One Anomaly[2]		972	70.4

[1] Indicates anomalies apparent soon after a live birth.

[2] Does not equal the sum of anomalies specified because of multiple anomaly occurrences.

[3] Ninth Revision International Classification of Diseases, WHO.

[4] Includes three digit duplicates if fourth digit is different, permitting total counting of distinct conditions.

The most frequently reported category was ICD 755, other congenital anomalies of limbs (excluding those classified to 754), with 216 anomalies. When this category is combined with the category 754, certain congenital musculoskeletal deformities (including clubfoot), and category 756, other congenital musculoskeletal anomalies, the total number of musculoskeletal system anomalies reported increases to 411, or 42.3 percent of all the 972 anomalies reported.

Congenital anomaly rates by age of mother and race of child are presented in Table 1.28. The rates for all races combined varied with the age of the mother. The lowest rate was experienced by mothers 30-34 years of age. The rates increase as age decreases below 30 years of age and generally increase with age above 34 years. Congenital anomaly rates for other than white infants were above those for white infants for women below 35 years of age. The overall rate for white infants was 67.3 compared to 85.0 for infants of other races.

Figure 1.8 displays the rate of reported congenital anomalies for Michigan resident live births over the period 1960-1985. The rate has exhibited a cyclical pattern over this time period. The rate rose from 88.4 per ten thousand live births in 1960 to 120.6 in 1963. By 1970 the rate had returned to the level of 1960 (88.3). The rate then rose to 100.8 in 1973. Since 1973 the rate has declined by 30.2 percent. The rate of 70.4 for 1985 is the lowest reported congenital anomalies rate during the 26 year period.

COMPLICATIONS

The numbers of deliveries with specific types of complications reported in 1985 are shown in Table 1.29. These data represent entries in three boxes on the live birth certificate: complications of pregnancy, concurrent illnesses or conditions affecting this pregnancy, and complications of labor and/or delivery. It is important to note that these items are under-reported on the birth certificate. Some conditions or procedures, such as obstetrical operations, may be routinely performed by some physicians, and hence not be considered *"complications"*. In addition to valid complications there are also inappropriate terms entered, such as *"prematurity"*, *"spontaneous delivery"* or *"home delivery"*. These inappropriate terms were omitted in the tabulations of complications shown in Tables 1.29 and 1.30. The total number of deliveries with one or more valid complications was 39,647. This is a rate of 28.7 per 100 live births.

It should be noted that in some cases the code used to describe the complication is dependent on the box in which the entry is found, while in other cases the same code is given regardless of the box used. An example of the latter situation is chronic hypertension, which is shown in Table 1.29 under the heading *"Concurrent illnesses or conditions affecting this pregnancy"* regardless of the box in which it was entered on the birth certificate. Thus, there were 8,877 deliveries (643.0 per 10,000 live births) with one or more entries which were coded to the various categories under the heading *"Concurrent illnesses or conditions affecting this pregnancy"*, while the number of births with one or more entries in the box bearing this title on the birth certificate was only 6,075 (440.1 per 10,000 live births). This latter figure is more comparable to the rate of 427.8 reported for 1978, as prior to 1979 specific types of complications were not coded and tabulated. Rates presented for *"Concurrent illnesses or conditions affecting this pregnancy"*, *"Complications of pregnancy"*, and *"Complications of labor and/or delivery"* were derived from the numbers of records with entries in these boxes.

Table 1.28
Live Births With Congenital Anomalies Reported and Congenital Anomaly Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years............	2	*	-	*	2	*	-	*
15-19 Years................	133	81.7	87	79.5	46	86.3	-	*
20-24 Years................	297	72.2	235	70.4	62	80.1	-	*
25-29 Years................	315	67.0	258	63.8	57	86.9	-	*
30-34 Years................	161	63.2	127	58.2	34	93.1	-	*
35-39 Years................	50	72.8	42	75.0	8	64.2	-	*
40 Years or Over..........	14	157.8	11	156.0	3	*	-	*
Total......................	972	70.4	760	67.3	212	85.0	-	*
Median Age at Last Birthday..................	25	000	26	000	24	000	*	000

[1] Number of live births with congenital anomalies reported per 10,000 live births.

[2] Rate denominator obtained from Table 1.6.

FIGURE 1.8
INCIDENCE OF CONGENITAL ANOMALIES REPORTED
PER 10,000 LIVE BIRTHS, MICHIGAN RESIDENTS, 1960-1985

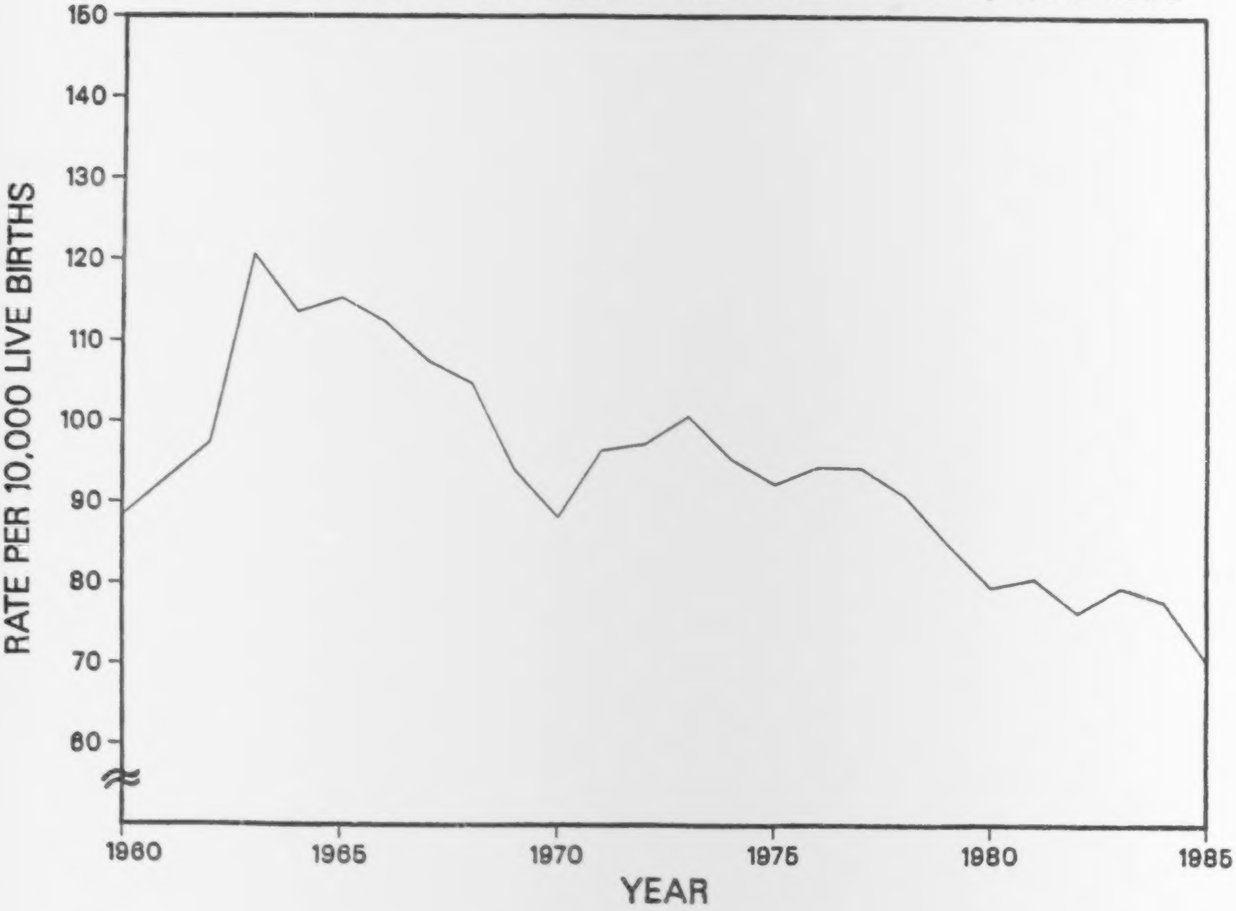


Table 1.29
Live Births with Specific Types of Complications Reported, Michigan Residents, 1985

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Concurrent illnesses or conditions affecting this pregnancy	8877	643.0
Chronic circulatory and genitourinary diseases in mother	2300	166.6
Chronic rheumatic heart disease	112	8.1
Chronic hypertensive disease	1472	106.6
Other chronic diseases and congenital anomalies of heart and circulatory system	180	13.0
Chronic diseases of genitourinary system	551	39.9
Other maternal conditions	6945	503.1
Syphilis	8	0.6
Gonorrhea and other VD, excluding syphilis	556	40.3
Diabetes mellitus	1260	91.3
Influenza	21	1.5
Rubella	1	*
Injury	54	3.9
Prior operations (excluding previous cesarean section)	121	8.8
Previous cesarean section	2748	199.1
Narcotic or drug user	278	20.1
Obesity	222	16.1
Hepatitis	31	2.2
Anemia	237	17.2
Pneumonia	29	2.1
Bronchitis	59	4.3
Emphysema	2	*
Epilepsy	71	5.1
Asthma	209	15.1
Alcohol Abuse	32	2.3
Overdose of Aspirin	-	-
All other maternal conditions	1358	98.4
Unknown type of maternal condition	19	1.4
Toxemia of pregnancy	2154	156.0
Hypertensive disease arising during pregnancy	71	5.1
Pre-eclampsia of pregnancy	1510	109.4
Eclampsia of pregnancy	37	2.7
Hyperemesis gravidarum	168	12.2
Toxemia superimposed on pre-existing hypertensive cardiovascular disease	112	8.1

Table 1.29 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified toxemia of pregnancy	471	34.1
Maternal ante- and intrapartum infection	940	68.1
Infections of genital tract	276	20.0
Pyelitis and pyelonephritis	52	3.8
Other infections of urinary tract	347	25.1
Infections of amniotic fluid	146	10.6
Other infections	162	11.7
Difficult labor with disproportion or abnormality of organs and tissues of the pelvis	3888	281.6
Difficult labor with malposition of fetus	4068	294.7
Breech presentation	2827	204.8
Transverse presentation	253	18.3
Brow presentation	38	2.8
Face presentation	70	5.1
Compound or shoulder presentation	74	5.4
Other specified presentation	311	22.5
Unspecified presentation	524	38.0
Difficult labor with abnormality of forces of labor	901	65.3
Primary uterine inertia	173	12.5
Secondary uterine inertia	132	9.6
Prolonged second stage	179	13.0
Precipitate birth	340	24.6
Other and unspecified abnormality of forces of labor	83	6.0
Other and unspecified difficult labor	924	66.9
Laceration of pelvic organs	611	44.3
Conditions of placenta and fetal membranes	1423	103.1
Placenta previa - partial	401	29.0
Placenta previa - complete	24	1.7
Premature separation of placenta - partial	683	49.5
Premature separation of placenta - complete	12	0.9
Placental insufficiency	65	4.7
Delivery complicated by retained placenta	237	17.2

Table 1.29 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified abnormalities of placenta and fetal membranes	41	3.0
Conditions of umbilical cord	3586	259.8
Other complications of pregnancy and childbirth	10932	791.9
Incompetent cervix	270	19.6
Premature rupture of membranes	2896	209.8
Hydramnios	143	10.4
Ectopic pregnancy	6	0.4
Abortion - any type	13	0.9
Destructive operation on live fetus to facilitate birth	12	0.9
Multiple pregnancy	1210	87.6
Hemorrhage or threatened abortion	799	57.9
RH incompatibility	199	14.4
Anemia of pregnancy	200	14.5
All other complications of pregnancy and childbirth	5935	429.9
Unknown type of complication of pregnancy and childbirth	27	2.0
Obstetrical operations	21889	1585.6
Antepartum obstetrical procedures	72	5.2
Operations inducing labor or assisting delivery	2086	151.1
Cesarean section	19497	1412.3
Operations after delivery or abortion	1549	112.2
At least one complication	39647	2871.9

[1] Sum of subcategories may not equal total for category due to the occurrences of multiple complications.

Table 1.30
Live Births with Complications Reported and Complication Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1985

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
Under 15 Years . .	104	29.5	23	21.3	81	33.3	-	-
15-19 Years . . .	4,518	27.8	3,022	27.6	1,496	28.1	-	-
20-24 Years . . .	11,705	28.5	9,291	27.9	2,412	31.2	2	*
25-29 Years . . .	13,050	27.7	10,914	27.0	2,135	32.6	1	*
30-34 Years . . .	7,674	30.1	6,383	29.3	1,290	35.3	1	*
35-39 Years . . .	2,289	33.3	1,789	31.9	498	40.0	2	*
40 Years or Over .	306	34.5	237	33.6	69	38.5	-	-
Unknown	1	*	1	*	-	-	-	-
Total	39,647	28.7	31,660	28.0	7,981	32.0	6	5.3
Median Age at Last Birthday	26	000	26	000	25	000	26	000

[1] Number of live births with complications reported per 100 live births.
[2] Rate denominators obtained from Table 1.6.

Among the most commonly reported maternal conditions not directly related to the pregnancy were chronic hypertensive disease, diabetes mellitus, and previous Cesarean sections, which were reported 1,472, 1,260 and 2,748 times, respectively, in 1985. Toxemia of pregnancy was reported for 2,154 deliveries (156.0 per 10,000). The most common form was pre-eclampsia of pregnancy, which was reported 109.4 times per 10,000 deliveries. Various forms of difficult labor were reported in 7 percent of all live births. There were 1,423 deliveries complicated by conditions of the placenta and fetal membranes, and 3,586 by conditions of the umbilical cord. Premature rupture of membranes was reported for 2,896 deliveries. There were 19,497 deliveries reported as Cesarean sections. It should be noted that the type of delivery is not a question on the birth certificate, so that the rate of 1,412.3 Cesarean sections per 10,000 deliveries undoubtedly understates the true rate.

In 1982 new codes were introduced for specific types of maternal conditions which had previously been lumped in the category *"all other maternal conditions"*. The conditions which were coded for the first time in 1982 were pneumonia, bronchitis, emphysema, epilepsy, asthma, alcohol abuse, and overdose of aspirin. If these conditions had been included in the category *"all other maternal conditions"*, the total in 1985 for this category would have been 1,760.

The distribution of deliveries with complications reported by age of mother and race of infant is shown in Table 1.30. The rates were similar for mothers 15-29 years of age. Older mothers and very young mothers were more likely to experience complications. The rate increased from 27.7 percent for mothers 25-29 years to 34.5 percent for mothers 40 years or over. The median age of mothers for births with complications reported was 26 years, the same as the median age for all live births. Similar patterns of variation by age of mother was observed for white infants. For other than white infants the lowest rate was observed for women 15-19 years of age and increased with decreasing and increasing age. The rate for other than white infants was higher than for white infants in all age groups. Overall the rate for other than white infants was about 14 percent higher (32.0 compared to 28.0).

PLACE OF OCCURRENCE

Of some confusion to persons not familiar with vital records data is the difference between occurrence and residence figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside United States boundaries is collected in order to obtain the full scope of activity for the state population. In 1985 1,832 Michigan resident live births occurred outside the state. Information on these events is forwarded to the state of Michigan for statistical purposes only. While only 1.3 percent of the total for the state is involved, statistics for the counties on Michigan's southern and northwestern borders would be strongly affected were this information not available.

Table 1.31 shows that births in the three border states and Canada comprise 89.1 percent of all resident live births that occurred out of state. Live births to Michigan residents occurred in 38 of the 50 states and in the District of Columbia in 1985.

Table 1.31
Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1985

GEOGRAPHIC AREA	LIVE BIRTHS TO RESIDENTS OCCURRING OUTSIDE MICHIGAN		LIVE BIRTHS TO NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total..............	1,832	100.0	544	100.0
Florida...........	11	0.6	37	6.8
Illinois..........	19	1.0	17	3.1
Indiana...........	488	26.6	110	20.2
Ohio..............	707	38.6	54	9.9
Texas.............	8	0.4	48	8.8
Wisconsin.........	358	19.5	197	36.2
Canada............	81	4.4	14	2.6
Other Areas.......	160	8.7	67	12.3

The number of nonresident live births that occurred in Michigan in 1985 was 544. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines so they might have a complete statistical file on their residents. Births in the four border areas comprised 68.9 percent of these events, as shown in Table 1.31. There were live births in Michigan to residents of 29 states, the Virgin Islands and at least 6 foreign countries.

PLACE OF BIRTH

In 1985, 99.4 percent of the 136,764 infants born in Michigan were delivered in hospitals. There were 620 infants born at home, and 202 other non-hospital deliveries (Table 1.32). While the percentage of infants not born in hospitals is still very small, the number of home deliveries and other out-of-hospital births has increased in recent years. Between 1973 and 1982 the number of infants born at home increased by 151 percent. The proportion of all live-born infants who were delivered at home increased from 0.20 percent in 1973 to 0.52 percent in 1982 (160 percent increase). The information for 1985 indicates a decline in the number of home births for the third year since 1982. The proportion of all births that are home births decreased 13.5 percent between 1982 and 1985.

ATTENDANT AT BIRTH

Data in Table 1.33 reveal that 99.1 percent of the live births which occurred in Michigan were attended by a physician, either an M.D. or D.O. There were 219 live births attended by the mother's husband, while nurses delivered 107 infants. Midwives and nurse-midwives delivered 664 infants. During 1985 there were 81 infants born to unattended women.

Of the 620 infants born in the mother's home, only 9.0 percent were attended by a physician while 30.6 percent were attended by the husband and 36.3 by midwives and nurse-midwives.

Table 1.32
Live Births by Place of Delivery, Michigan Occurrences, 1975-1985

YEAR	PLACE OF DELIVERY						
	TOTAL	HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1975	132,777	132,354	99.68	313	0.24	110	0.08
1976	130,253	129,714	99.59	375	0.29	164	0.13
1977	137,140	136,503	99.54	489	0.36	148	0.11
1978	137,896	137,119	99.44	573	0.42	204	0.15
1979	143,240	142,437	99.44	619	0.43	184	0.13
1980	144,077	143,257	99.43	645	0.45	175	0.12
1981	139,415	138,604	99.42	646	0.46	165	0.12
1982	137,127	136,236	99.35	707	0.52	184	0.13
1983	131,838	131,010	99.37	670	0.51	158	0.12
1984	134,847	134,042	99.40	646	0.48	159	0.12
1985	136,764	135,942	99.40	620	0.45	202	0.15

[1] Does not include births in hospitals without a maternity ward.

Table 1.33
Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1985

ATTENDANT	PLACE OF DELIVERY							
	TOTAL		HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	136,764	100.0	135,942	100.0	620	100.0	202	100.0
Physician, M.D.	116,660	85.3	116,570	85.7	41	6.6	49	24.3
Physician, D.O.	18,859	13.8	18,815	13.8	15	2.4	29	14.4
Husband	219	0.2	2	0.0	190	30.6	27	13.4
Nurse	107	0.1	99	0.1	2	0.3	6	3.0
Midwife	242	0.2	5	0.0	217	35.0	20	9.9
Physician's Asst.	26	0.0	26	0.0	-	-	-	-
Nurse-Midwife[2]	422	0.3	412	0.3	8	1.3	2	1.0
Other	144	0.1	11	0.0	84	13.5	49	24.3
Unattended	81	0.1	1	0.0	60	9.7	20	9.9
Unknown	4	0.0	1	0.0	3	0.5	-	-

[1] Does not include births in hospitals without a maternity ward.

[2] May or may not be certified by the American College of Nurse Midwives.

FETAL DEATHS

There were 1,325 fetal deaths reported in 1900. The number of reported fetal deaths increased from 1900 through 1916 and by 1916 3,689 were reported (Figure 1.9 and Table 4.1). The numbers of deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This year marked the highest frequency of occurrence in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined to 2,572 fetal deaths then increased through 1943, decreased in 1944 and 1945, and increased again to 3,422 in 1947. Fetal deaths numbered between about 3,000 and 3,250 in the period 1948 to 1958. In the 1960's and 70's the number of reported fetal deaths declined sharply. By 1976, the number fell to 1,264, a new low for this century. After a slight increase in 1977 (1,284) new lows have been recorded in each of the following seven years. The number of Michigan resident fetal deaths was 821 in 1984. In 1985 the number increased to 850 resident fetal deaths.

The fetal death ratio for Michigan has declined through most of the twentieth century (Figure 1.10 and Table 4.2). The ratio rose from 30.3 in 1900 to 43.5 fetal deaths per 1,000 live births in 1905. Through the teens and early twenties, this ratio fluctuated between 38.0 and 42.4, never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0, marking a turning point, as fetal death ratios have generally declined since that year. The low ratio of 1900 was first succeeded by a new low ratio in 1936 (29.7). Over the next 49 years, new lows have been established repeatedly, as the fetal death ratio continues to decline. The ratio in 1984 was 6.0, the lowest observed in this century. The ratio increased to 6.2 in 1985.

National fetal death data are presented in Figure 1.10 and Table 1.34. Michigan's fetal death ratios have generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only nine of the 57 years for which national data are available. The last time the United States ratio was below the Michigan ratio was in 1950. In 1984, the Michigan ratio of 6.0 was 26.8 percent below the national ratio of 8.2. It should be noted that fetal deaths in Michigan are comprised of infants born dead that have passed through 20 weeks gestation or which weigh 400 grams or more. This definition is different from that of most states.

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.35. This classification is based on the 9th Revision of the International Classification of Diseases which was introduced in 1979. Since major changes were made between the 8th and 9th revisions of the ICD in the section used for classifying causes of fetal death, comparisons between cause-specific ratios for 1979 and later years and those for years prior to 1979 require detailed study. Also, since a relatively large number of deaths are allocated to unspecified causes, caution should be exercised in attempting to draw specific inferences regarding causes of death.

In 1985, 221 of the total 850 deaths were assigned to the category of "*Other and ill-defined conditions originating in the perinatal period*". Half (50.9 percent) of the remaining fetal deaths for which a cause was stated were attributed to complications of placenta, cord, and membranes (ICD 762). This is a group of maternal conditions which includes placenta previa, premature separation of the placenta, placental hemorrhage, and compression of the umbilical cord. Second in frequency was the category maternal complications of pregnancy (ICD 761), which was listed as the cause of 106 fetal deaths.

FIGURE 1.9
FETAL DEATHS, MICHIGAN RESIDENTS, 1900-1985

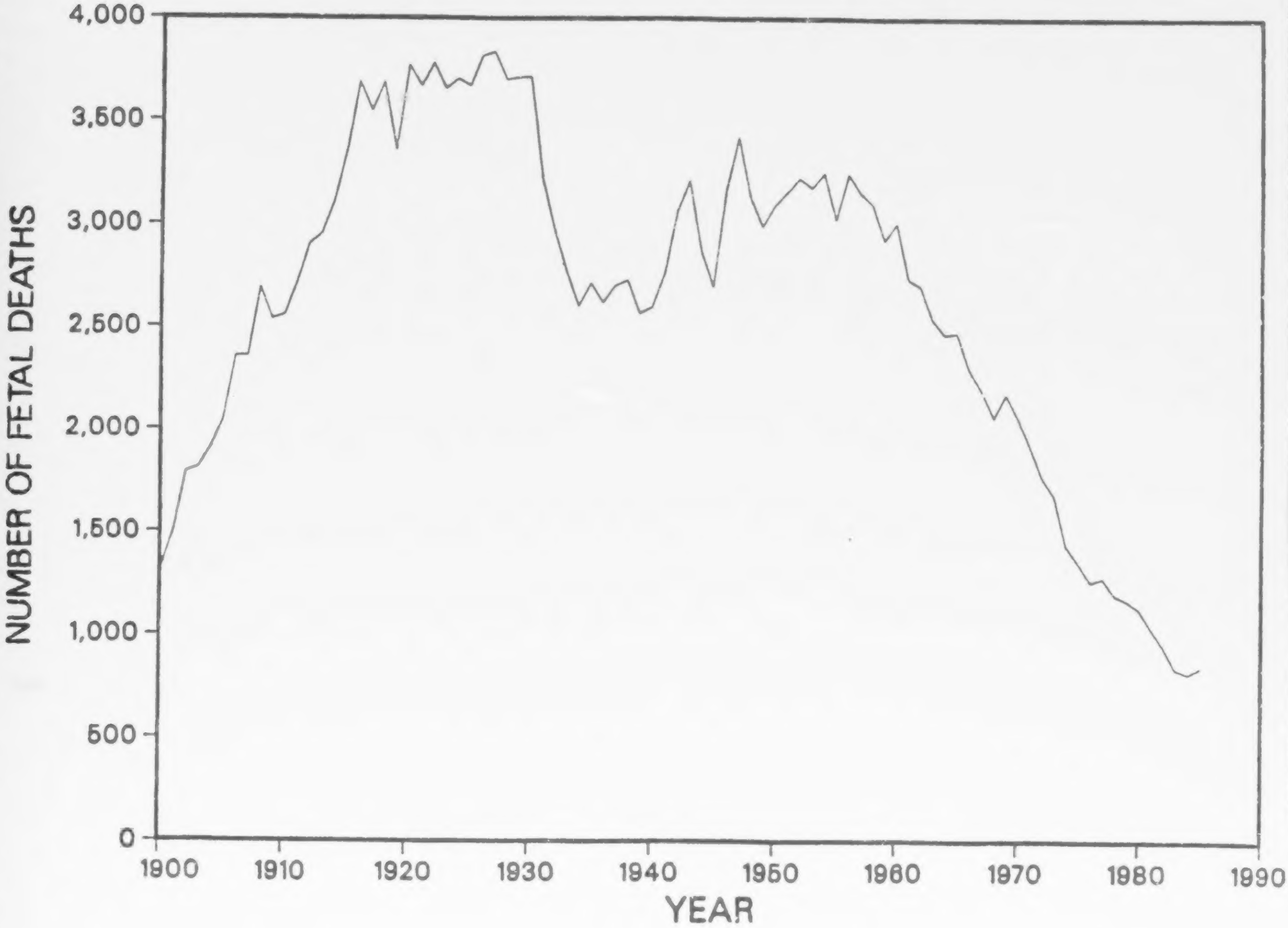
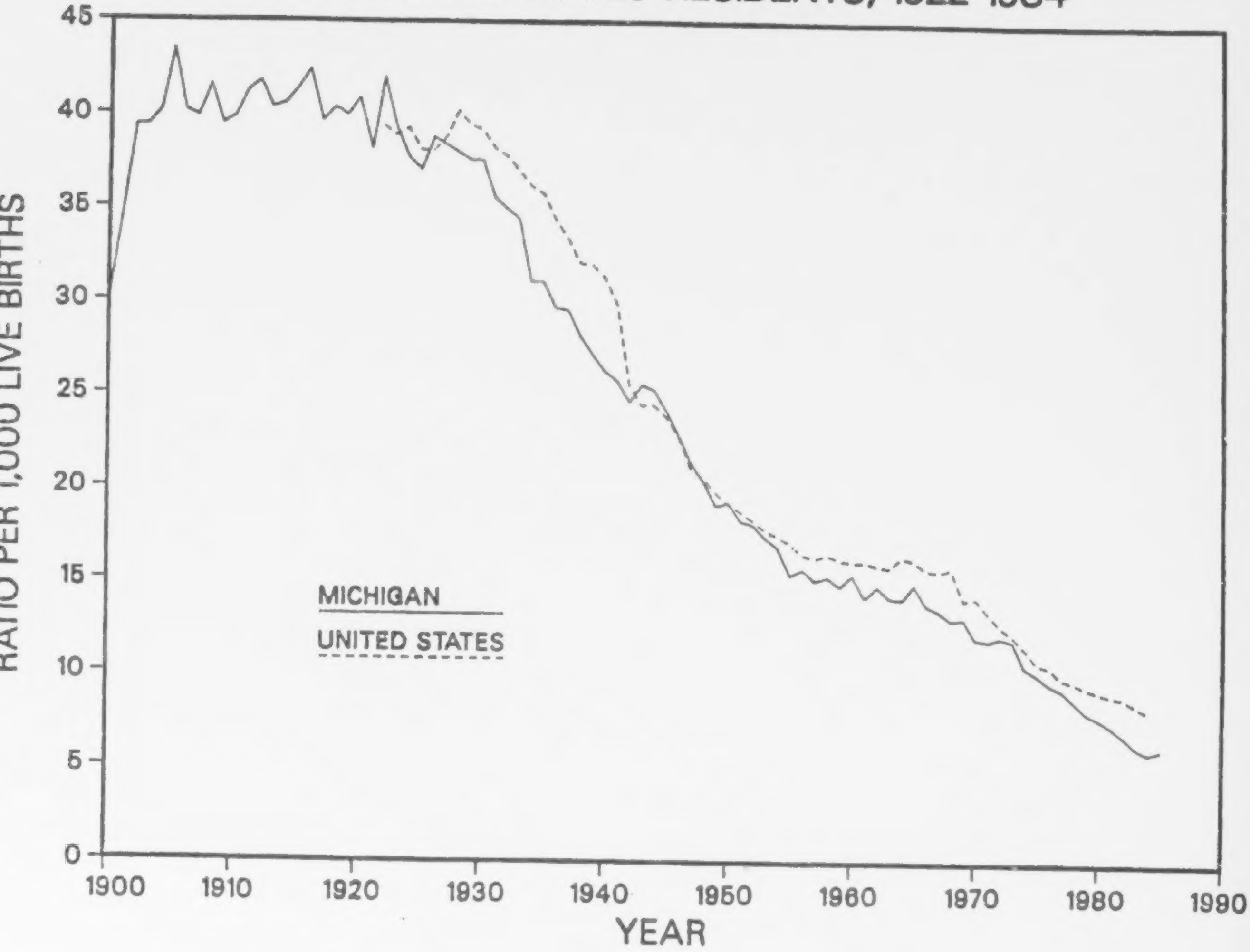


FIGURE 1.10
FETAL DEATH RATIOS, MICHIGAN RESIDENTS, 1900-1985, AND UNITED STATES RESIDENTS, 1922-1984[1]



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[1] U.S. ratios prior to 1933 are for registration areas only. U.S. ratios are based on three different definitions of fetal death:

1) prior to 1942 - all reported fetal deaths regardless of period of gestation
2) 1942-1968 - fetal deaths with gestational age 20 weeks or more or not stated
3) 1969-current - fetal deaths of stated or presumed period of gestation of 20 or more weeks

Table 1.34
Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1985

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS	FETAL DEATH RATIOS		FETAL DEATHS	FETAL DEATH RATIOS
---	---	1900	1,325	30.3
---	---	1910	2,559	39.9
70,010[1]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,262	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,818	13.4	1971	1,923	11.9
41,380	12.7	1972	1,765	12.0
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,438	10.5
33,796	10.7	1975	1,356	10.1
33,111	10.5	1976	1,264	9.6
33,053	9.9	1977	1,284	9.3
32,301	9.7	1978	1,201	8.7
32,969	9.4	1979	1,175	8.1
33,353	9.2	1980	1,135	7.8
32,596	9.0	1981	1,040	7.4
32,694	8.9	1982	953	6.9
30,752	8.5	1983	843	6.3
30,099	8.2	1984	821	6.0
N.A.	N.A.	1985	850	6.2

[1] Data for 1922.

Table 1.35
Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1985

ICD No.[1]	CAUSE OF DEATH	FREQUENCY	RATIO[2]
740	Anencephalus and similar anomalies	16	11.6
742	Other congenital anomalies of nervous system	9	6.5
746	Other congenital anomalies of heart	3	2.2
748	Congenital anomalies of respiratory system	1	0.7
752	Congenital anomalies of genital organs	1	0.7
753	Congenital anomalies of urinary system	1	0.7
756	Other congenital musculoskeletal anomalies	3	2.2
758	Chromosomal anomalies	11	8.0
759	Other and unspecified congenital anomalies	21	15.2
740-759	All congenital anomalies combined	66	47.8
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	44	31.9
761	Fetus or newborn affected by maternal complications of pregnancy	106	76.8
762	Fetus or newborn affected by complications of placenta, cord, and membranes	320	231.8
763	Fetus or newborn affected by other complications of labor and delivery	4	2.9
764	Slow fetal growth and fetal malnutrition	4	2.9
765	Disorders relating to short gestation and unspecified low birthweight	24	17.4
766	Disorders relating to long gestation and high birthweight	2	1.4
767	Birth trauma	4	2.9
768	Intrauterine hypoxia and birth asphyxia	32	23.2
770	Other respiratory conditions of fetus and newborn	3	2.2
771	Infections specific to the perinatal period	1	0.7
772	Fetal and neonatal hemorrhage	1	0.7
773	Hemolytic disease of fetus or newborn, due to isoimmunization	3	2.2
775	Endocrine and metabolic disturbances specific to the fetus and newborn	10	7.2
778	Conditions involving the integument and temperature regulation of fetus and newborn	5	3.6
779	Other and ill-defined conditions originating in the perinatal period	221	160.1
740-779	All Causes	850	615.7

[1] Ninth Revision of the International Classification of Diseases, WHO.
[2] Ratios per 100,000 resident live births.

This includes such complications as premature rupture of membranes, multiple pregnancy, and incompetent cervix. An additional 44 were deaths caused by maternal conditions which may be unrelated to the pregnancy. There were 66 fetal deaths caused by congenital anomalies in 1985.

AGE OF MOTHER AND RACE OF FETUS

It appears that the younger, the older, and other than white mothers have a greater risk of delivering a stillborn fetus. The rates of fetal loss for mothers under 20 years of age, 30 years of age or greater, and for the other than white fetus are higher than those for other groups (Table 1.36).

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 6.1 in 1985. An association of maternal age with fetal death rates is apparent from Table 1.36. The 25-29 year age group displayed the lowest rate. Progressively older and younger age groups displayed increasingly higher rates. The rate for women 15-19 (6.9) was 32.7 percent higher than the rate for women 25-29 years of age (5.2). The highest rate was experienced by women over 40, for whom the rate (10.0) was 1.9 times the rate for women in the lowest risk age group. The median age of women whose pregnancy resulted in a fetal death was 26 years, the same as the median age for women having live births.

In 1985 the fetal death rate for white fetuses was 5.7 while the fetal death rate for other races was 33.3 percent higher at 7.6. Rates for other than white fetuses were higher than for white fetuses in all age intervals with sufficient events to calculate rates. The differentials ranged from 17.5 percent for women aged 20 through 24 to 45.8 percent for women aged 25 through 29.

INTERPREGNANCY TIME PERIOD FOR FETAL DEATHS

For those women whose pregnancy terminated with a fetal death in 1985, a total of 485 reported the date of the termination of a previous pregnancy. Table 1.37 presents a comparison of fetal death rates by interpregnancy time span for births in 1985 to women who reported the date of a prior termination. Minimum risk was associated with spacings of between 2 and 3 years (3.9 fetal deaths per 1,000 total births). Risk increased progressively as the length of spacings decreased or increased. The fetal death rate for births with spacings of five or more years was 59.0 percent above the rate of the risk with spacing between 2 and 3 years. The greatest risk of fetal death was associated with spacings of less than one year. For births in this category the fetal death rate (15.8) was 3.3 times the rate with spacing between 1 and 2 years and 4.1 times the rate with spacing between 2 and 3 years.

When comparing interpregnancy time spans for live births and fetal deaths one should be aware that the shorter gestational period associated with fetal deaths results in a correspondingly shorter interpregnancy time span. However, the median interpregnancy time period for fetal deaths was 2 years and 7 months, which was the same as the median time period for women having live births in 1985.

Table 1.38 indicates that, as with live births (Table 1.13), the outcome of the immediate prior termination has a strong influence on the interval between pregnancies. For 149 women whose prior termination was a fetal death, the median interpregnancy

Table 1.36
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1985

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years	3	352	355	*
White	-	108	108	*
Other Than White	3	243	246	*
Not Stated	-	1	1	*
15-19 Years	113	16,279	16,392	6.9
White	69	10,945	11,014	6.3
Other Than White	42	5,328	5,370	7.8
Not Stated	2	6	8	*
20-24 Years	244	41,125	41,369	5.9
White	190	33,357	33,547	5.7
Other Than White	52	7,739	7,791	6.7
Not Stated	2	29	31	*
25-29 Years	245	47,049	47,294	5.2
White	197	40,458	40,655	4.8
Other Than White	46	6,558	6,604	7.0
Not Stated	2	33	35	*
30-39 Years	229	32,355	32,584	7.0
White	186	27,418	27,604	6.7
Other Than White	43	4,897	4,940	8.7
Not Stated	-	40	40	*
40 or Over	9	887	896	10.0
White	6	705	711	8.4
Other Than White	3	179	182	*
Not Stated	-	3	3	*
Not Stated	7	5	12	583.3
White	3	3	6	*
Other Than White	2	1	3	*
Not Stated	2	1	3	*
Total	850	138,052	138,902	6.1
White	651	112,994	113,645	5.7
Other Than White	191	24,945	25,136	7.6
Not Stated	8	113	121	66.1

Table 1.37
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations[1], 1985[2]

TIME SPAN IN YEARS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Total	485	91,010	91,495	5.3
Less Than One	51	3,177	3,228	15.8
1 < 2	132	27,304	27,436	4.8
2 < 3	88	22,246	22,334	3.9
3 < 5	111	21,832	21,943	5.1
5 or More	103	16,451	16,554	6.2

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, rates are not comparable to data from prior years.

Table 1.38
Fetal Deaths[1] to Women Reporting Prior Pregnancy Terminations[2] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[3], Michigan Residents, 1985[3]

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH[4]		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	485	100.0	149	100.0	336	100.0
Less Than One .	51	10.5	29	19.5	22	6.5
1 < 2	132	27.2	46	30.9	86	25.6
2 < 3	88	18.1	27	18.1	61	18.2
3 < 5	111	22.9	25	16.8	86	25.6
5 or More . . .	103	21.2	22	14.8	81	24.1
Median Time Span	2 yrs. 7 mos.	000	1 yr. 11 mos.	000	2 yrs. 11 mos.	000

[1] Deaths of fetuses of twenty or more weeks gestation or weighing 400 grams or more.

[2] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[3] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to data from prior years.

[4] Fetal death as defined for the pregnancy history on the fetal death record is a fetal death of any gestational age.

time span was 1 year and 11 months. For 336 women whose prior termination was a live birth, the median interpregnancy time span was 2 years and 11 months.

PRENATAL CARE – FETAL DEATHS

Of the 850 fetal deaths reported for 1985, 43 or 5.1 percent of the reports indicated that the mother had no prenatal visits. The comparable percent for live births was 0.6. The percent of mothers with fewer than ten prenatal visits was 61.0 for fetal deaths and 20.8 for live births (Table 1.17 and Table 1.39).

The number of prenatal visits varied by race (Table 1.39). Mothers of white fetuses had a mean of 7.7 visits whereas those of other than white fetuses reported a mean of 5.9 visits. Note, however, that the number of prenatal visits was not stated on 12.6 percent of the reports for white fetuses and 9.9 percent of the reports for other than white fetuses.

The fetal death rate varied with the number of prenatal visits (Table 1.40). The rate was 47.4 for mothers with no care, 42.7 for mothers with 1–4 visits, and 13.0 for those with 5–9 visits. The fetal death rate was low for mothers with 10–14 visits (2.2) and 15–19 visits (1.8) and increased to 2.4 for mothers with 20 or more visits.

Fetal death rates for white and other than white fetuses exhibited similar patterns of association with the number of prenatal visits (Table 1.40). Although the overall fetal death rate for other than white fetuses was 33.3 percent higher than for white fetuses, the fetal death rate for other than white fetuses was 39.6 percent higher than the rate for white fetuses when the mother received no prenatal care, was 38.7 percent lower when the mother had 1 to 4 prenatal care visits and was similar when the mother had more than 4 visits.

Caution should be exercised in interpreting the above fetal death rates and proportions. Incomplete reporting of the number of visits occurred on 12.2 percent of the fetal death reports compared with 2.6 percent of the live birth records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits (Table 1.41). In 1985, 29.8 percent of the reported fetal deaths occurred before 28 weeks of gestational age, and 54.0 percent occurred before 36 weeks. Incomplete reporting of gestational age occurred on an additional 12.0 percent of the fetal death reports.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.42). The proportion of all fetal deaths that were to women who reported receiving care prior to the fourth month of pregnancy was 68.9 with 80.5 percent receiving care prior to the sixth month. From 1970 through 1973 there were increases in the percentage of fetal deaths in which the mother received care prior to the fourth and sixth month. These percentages declined between 1973 and 1976, and generally increased between 1976 and 1983 (Figure 1.11). Both percentages declined in 1984 and 1985. However the percentage of all births (live births and fetal deaths) in which the mother received care prior to the fourth month increased from 80.7 percent in 1984 to 81.0 percent in 1985. The percentage of all births in which the mother received care prior to the sixth month remained the same at 93.8.

The fetal death rate increases as the quality of prenatal care measured by the Kessner Index decreases. The rate is 4.3 per 1000 total births (fetal deaths and live births) born to women receiving adequate prenatal care (Table 1.43). The rate increases

Table 1.39
Fetal Deaths and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Fetus, Michigan Residents, 1985

NUMBER OF PRENATAL VISITS	RACE OF FETUS							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	43	5.1	20	3.1	23	12.0	-	*
1-4	153	18.0	109	16.7	42	22.0	2	25.0
5-9	322	37.9	246	37.8	74	38.7	2	25.0
10-14	190	22.4	162	24.9	27	14.1	1	12.5
15-19	29	3.4	25	3.8	4	2.1	-	*
20 or Over	9	1.1	7	1.1	2	1.0	-	*
Not Stated	104	12.2	82	12.6	19	9.9	3	37.5
Total	850	100.0	651	100.0	191	100.0	8	100.0
Median Number of Visits	7	000	8	000	5	000	5	000
Mean Number of Visits	7.3	000	7.7	000	5.9	000	5.6	000

Table 1.40
Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race[1] Michigan Residents, 1985

NUMBER OF VISITS	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
Total	850	138,052	6.2	651	112,994	5.8	191	24,945	7.7
None	43	908	47.4	20	498	40.2	23	410	56.1
1-4	153	3,582	42.7	109	2,198	49.6	42	1,381	30.4
5-9	322	24,789	13.0	246	18,981	13.0	74	5,799	12.8
10-14	190	86,066	2.2	162	72,936	2.2	27	13,112	2.1
15-19	29	16,124	1.8	25	13,167	1.9	4	2,954	*
20 or Over	9	3,780	2.4	7	2,985	2.3	2	793	*
Not Stated	104	3,653	28.5	82	2,880	28.5	19	687	27.7

[1] Race not stated included in total columns only.

Table 1.41
Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1985

GESTATIONAL AGE IN COMPLETED WEEKS	NUMBER	PERCENT	MEDIAN NUMBER OF VISITS
Under 20	11	1.3	4
20-23	114	13.4	4
24-27	128	15.1	5
28-31	88	10.4	6
32-35	117	13.8	8
36-39	175	20.6	10
40-43	98	11.5	12
44 or More	17	2.0	9
Unknown	102	12.0	3
Total	850	100.0	7

Table 1.42
Fetal Deaths by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1985

MONTH CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN
Total	850	43	153	322	190	29	9	104
First	97	-	17	42	25	7	1	5
Second	308	-	38	148	94	13	5	10
Third	181	-	37	75	55	9	2	3
Fourth	63	-	23	25	11	-	-	4
Fifth	35	-	10	19	5	-	-	1
Sixth	20	-	12	7	-	-	-	1
Seventh	5	-	4	1	-	-	-	-
Eighth	8	-	6	2	-	-	-	-
Ninth	-	-	-	-	-	-	-	-
No Care	43	43	-	-	-	-	-	-
Unknown	90	-	6	3	-	-	1	80

FIGURE 1.11
PERCENT OF WOMEN HAVING FETAL DEATHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1985

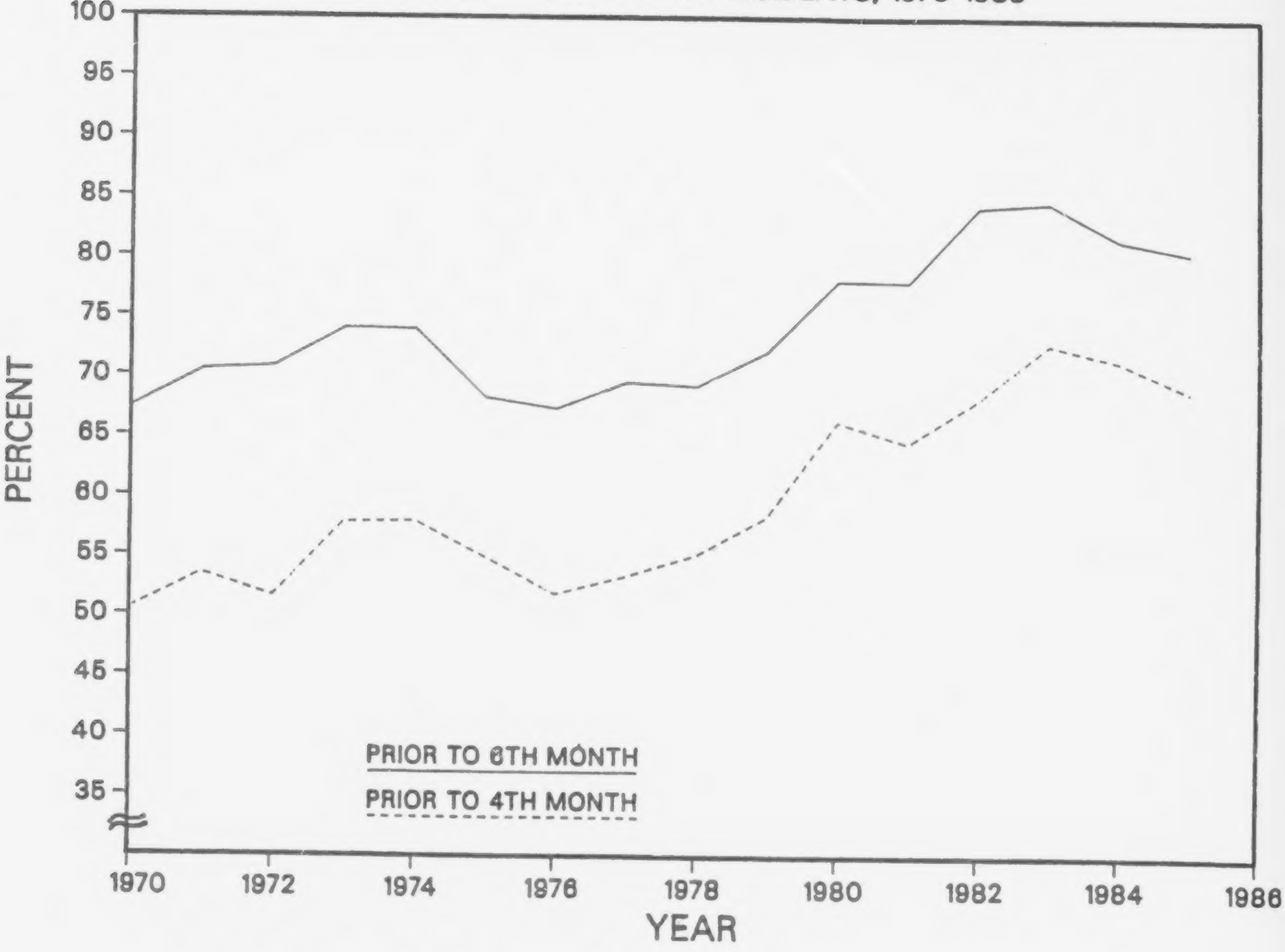

Table 1.43

Number and Percent of Fetal Deaths by Level of the Mother's Prenatal Care and Race of Fetus, Michigan Residents, 1985

LEVEL OF PRENATAL CARE (KESSNER INDEX[1])	RACE OF FETUS							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Adequate	438	51.5	359	55.1	76	39.8	3	37.5
Intermediate	212	24.9	154	23.7	57	29.8	1	12.5
Inadequate	135	15.9	89	13.7	45	23.6	1	12.5
Unknown	65	7.6	49	7.5	13	6.8	3	37.5
Total	850	100.0	651	100.0	191	100.0	8	100.0

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[1] The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies, fewer prenatal visits constitute adequate care).

to 8.1 and 15.8 for births to women receiving intermediate and inadequate levels of care respectively. The fetal death rates are about 14 percent higher for other than white births than for white births to women receiving adequate or intermediate levels of care. This difference increases to about 21 percent for births to women receiving inadequate levels of care.

The numbers of fetal deaths increase as the quality of prenatal care increases even though the fetal death rates decrease because most women receive adequate care (Table 1.44). The proportion of total births born to women receiving adequate care in 1985 is 73.1 percent while 51.5 percent of the fetal deaths are born to women with adequate prenatal care. Since the Kessner Index reduces the minimum number of prenatal visits required to meet the definition of adequate care when the gestational age at birth is less than 36 weeks, the percent of the fetal deaths which are born to women with adequate prenatal care should not be affected by the shorter gestational age experienced by many fetal deaths.

FETAL WEIGHT

Among live births, the percentage of infants weighing less than 2,500 grams at birth was 6.8. The comparable percent among fetal deaths was 70.2. The distribution of fetal weight by plurality for fetal deaths is presented in Table 1.45. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percent of single delivery fetal deaths under 2,500 grams was 69.6. The comparable percent for twin deliveries was 78.5.

The fetal weight distribution is strongly associated with gestational age (Table 1.46). The median fetal weight for all fetal deaths was 1,417 grams compared to a median birthweight of 3,402 grams for live births. For deaths of fetuses of 32-35 weeks of age, the median was 1,786 grams, while for the normal gestational age range of 36-39 weeks the median weight was only 2,608 grams.

Table 1.44
Fetal Deaths, Total Births and Fetal Death Rates by Level of Prenatal Care and Race[1]
Michigan Residents, 1985

LEVEL OF CARE (KESSNER INDEX[2])	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
Total	850	138,902	6.1	651	113,645	5.7	191	25,136	7.6
Adequate	438	101,337	4.3	359	85,633	4.2	76	15,681	4.8
Intermediate	212	26,278	8.1	154	19,870	7.8	57	6,402	8.9
Inadequate	135	8,526	15.8	89	6,001	14.8	45	2,520	17.9
Unknown	65	2,761	23.5	49	2,141	22.9	13	533	24.4

[1] Race not stated included in total columns only.

[2] The Kessner Index is a classification of prenatal care based on the month of pregnancy prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies, fewer prenatal visits constitute adequate care).

Table 1.45
Fetal Deaths by Fetal Weight and Plurality[1]
Michigan Residents, 1985

WEIGHT	FETAL DEATHS	CUM. PERCENT	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY	QUADRUPLET DELIVERY
500 Grams or Less .	168	19.8	147	21	-	-
501-1,000 Grams . .	170	39.8	156	13	-	1
1,001-1,500 Grams .	84	49.6	76	7	1	-
1,501-2,000 Grams .	88	60.0	84	4	-	-
2,001-2,499 Grams .	87	70.2	81	6	-	-
2,500-3,000 Grams .	88	80.6	83	5	-	-
3,001-3,500 Grams .	78	89.8	74	4	-	-
3,501-4,000 Grams .	41	94.6	41	-	-	-
4,001-4,500 Grams .	12	96.0	12	-	-	-
4,501 Grams or More	6	96.7	6	-	-	-
Not Stated	28	100.0	22	5	1	-
Total	850	100.0	782	65	2	1

[1] Plurality unknown included in fetal deaths column only

Table 1.46
Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1985

FETAL WEIGHT IN GRAMS	GESTATIONAL AGE IN COMPLETED WEEKS								
	TOTAL	UNDER 20	20-23	24-27	28-31	32-35	36-39	40-43	44 OR MORE	UNKNOWN
Less Than 1501	422	10	104	120	68	39	16	6	1	58
1501-2499	175	1	1	3	16	61	56	15	-	22
2500 or Over	225	-	1	2	2	15	101	76	14	14
Unknown	28	-	8	3	2	2	2	1	2	8
Total	850	11	114	128	88	117	175	98	17	102
Median[1]	1417	510	402	623	921	1786	2608	3316	3274	1010

[1] Excluding unknown fetal weight.

MORTALITY

SECTION II

MORTALITY: AN OVERVIEW, 1985

RESIDENT DEATHS	78,635
CRUDE DEATH RATE	8.7
INFANT DEATHS	1,575
INFANT DEATH RATE	11.4
NEONATAL DEATHS	1,071
NEONATAL DEATH RATE	7.8
PERINATAL DEATHS	1,764
PERINATAL DEATH RATE	12.7
MATERNAL DEATHS	9
MATERNAL DEATH RATE	0.7
DEATHS FROM HEART DISEASE PER DAY	84
DEATHS FROM CANCER PER DAY	47
DEATHS FROM STROKE PER DAY	15
DEATHS FROM ACCIDENTS PER DAY	9
MEDIAN AGE AT DEATH	73 YEARS
MEDIAN AGE AT DEATH FOR MALES	70 YEARS
MEDIAN AGE AT DEATH FOR FEMALES	77 YEARS

MORTALITY

In 1985 there were 78,635 deaths recorded for Michigan residents, 2,234 more than in the previous year. The crude death rate per 1,000 population was 8.7 in 1985, compared to a rate of 8.4 observed in 1983 and 1984. The age-adjusted death rate increased in 1985 and was the highest age-adjusted rate since 1978. This latter rate, the age-adjusted rate, serves as a better measure of mortality than a crude death rate as age-adjusted death rates control for differences or variations in the age composition of the population.

Between 1900 and 1985 the number of deaths occurring to Michigan residents increased from 32,453 to 78,635. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1985, the increase is due to an increasing population. The crude death rate decreased from 13.4 (per 1,000 population) in 1900 to 8.7 in 1985. The 1979 death rate of 7.9 was the lowest crude death rate ever recorded for Michigan. The highest death rate (15.6) was observed in 1918 (Figure 2.1).

A comparison of deaths and crude death rates for Michigan and the United States for the period 1970-1985 is presented in Table 2.1. As Michigan's population is somewhat "*younger*" than that of the nation, the Michigan rate has consistently been below or equal to the United States rate. The Michigan rates were relatively stable between 1970 and 1973, declined 9.2 percent between 1973 and 1979 and then increased to equal the 1973 rate. The national rates followed a similar pattern. Between 1970 and 1985 the number of Michigan resident deaths increased by 3.0 percent and the crude death rate increased by 1.2 percent. The age-adjusted death rates displayed the opposite pattern by dropping 17.8 percent (Table 2.6). Over the period 1970-1985 the age-adjusted death rates for the nation declined by a greater amount, 23.3 percent. Over the period 1970 through 1985 the age-adjusted rates for Michigan have been persistently higher than national rates. Between 1970 and 1981 the rates were similar, based upon the revised data in Table 2.6. By 1985 the age-adjusted rate for Michigan was 7.7 percent above the national rate.

The numbers of deaths by marital status and age for men and women are displayed in Table 2.2. The majority of men were married at the time of death while the majority of women were widows. Men were more than twice as likely as women to be married at the time of death (59.1 percent compared to 27.9 percent). Conversely, women were over three times as likely to be widows at the time of death as men were to be widowers (56.0 percent compared to 17.5 percent). Among males, 14.4 percent had never been married, while the corresponding figure for females was 9.1 percent. Men were also more likely to be divorced (8.6 percent compared to 6.7 percent).

Table 2.3 presents data on the number of deaths by race for the period 1970-1985. The number of deaths of white persons increased by 0.2 percent over these years while deaths of black persons increased by 24.9 percent. Reported deaths of American Indians remained fairly constant. It should be noted that data on race are derived from the death certificates filed by funeral directors. Data from sources where race is self-enumerated, when matched with death data, indicate larger numbers of American Indians and persons of other races than reported as members of those groups on the death certificate.[1] In

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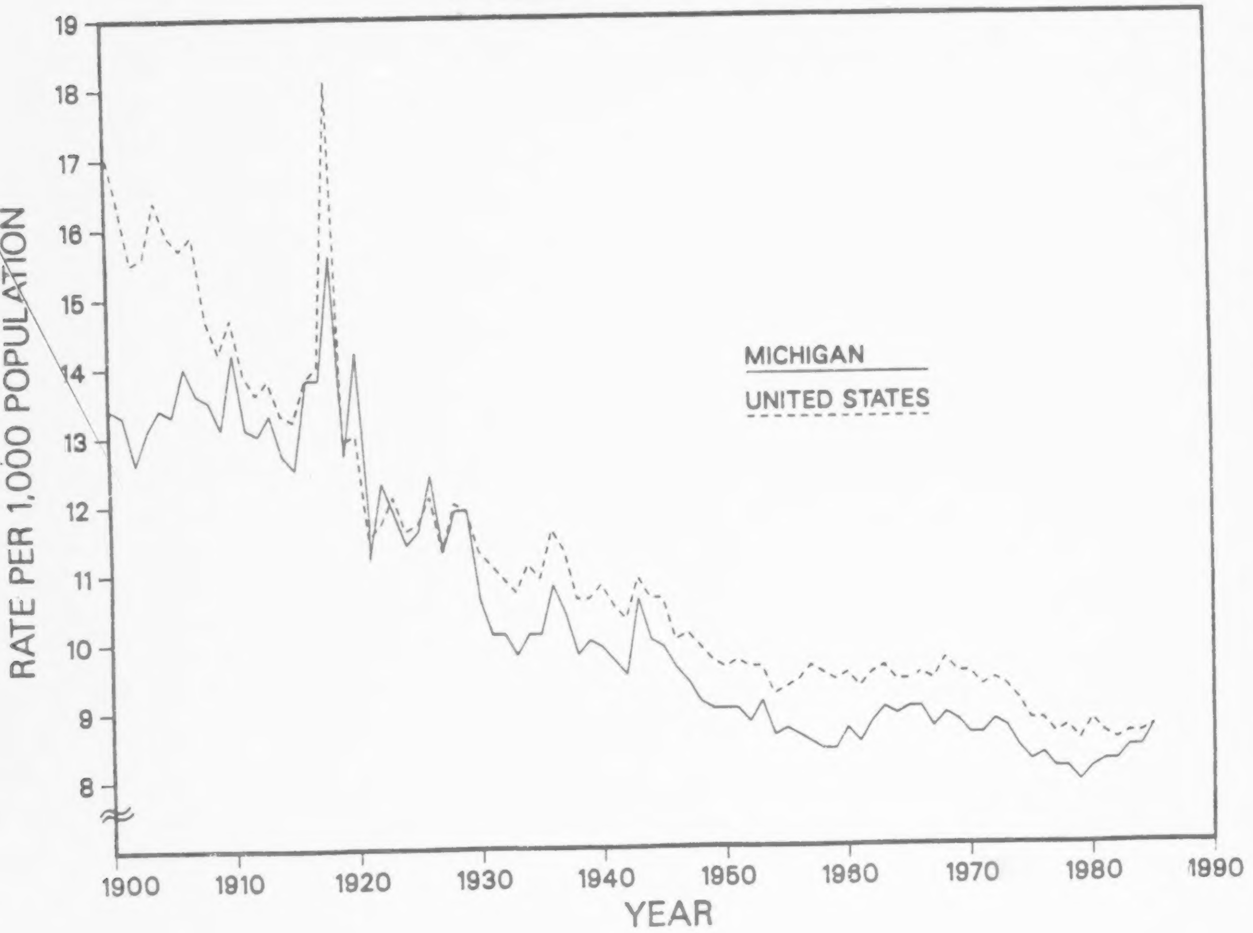
[1] National Center for Health Statistics, Comparability of Marital Status, Race, Nationality and Country of Origin in the Death Certificate and Matching Census Record: United States, May – August, 1960 (Washington, D.C., 1969).

FIGURE 2.1
CRUDE DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985



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[1] United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

Table 2.1
Number of Deaths and Crude Death Rates,
Michigan and United States Residents, 1970-1985

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.3	1973	78,522	8.7
1,934,388	9.1	1974	76,143	8.4
1,892,879	8.8	1975	74,522	8.2
1,909,440	8.8	1976	75,801	8.3
1,899,597	8.6	1977	74,144	8.1
1,927,788	8.7	1978	74,773	8.1
1,913,841	8.5	1979	73,480	7.9
1,989,841	8.8	1980	74,991	8.1
1,977,981	8.6	1981	75,818	8.2
1,974,797	8.5	1982	75,536	8.2
2,019,201	8.6	1983	76,639	8.4
2,039,369	8.6	1984	76,401	8.4
2,084,000Pr.	8.7Pr.	1985	78,635	8.7

Table 2.2
Deaths by Age, Sex, and Marital Status, Michigan Residents, 1985

AGE IN YEARS	MALES						FEMALES					
	TOTAL	NEVER MARRIED	DIVORCED	WIDOWER	MARRIED[1]	UNKNOWN	TOTAL	NEVER MARRIED	DIVORCED	WIDOW	MARRIED[1]	UNKNOWN
Under 15	1,351	1,351	-	-	-	-	917	917	-	-	-	-
15-24	1,129	1,025	13	1	90	-	408	335	11	1	61	-
25-34	1,429	720	200	14	490	5	617	220	101	14	279	3
35-44	1,692	330	423	38	894	7	904	129	209	43	522	1
45-54	2,862	327	562	97	1,866	10	1,647	112	297	165	1,070	3
55-64	7,003	564	971	477	4,964	27	4,451	200	612	1,052	2,583	4
65-74	10,772	739	820	1,356	7,809	48	7,456	368	548	3,520	3,006	14
75-84	10,284	650	487	2,657	6,440	50	10,323	531	457	7,108	2,208	19
85+	5,296	316	141	2,660	2,162	17	10,076	544	248	8,722	547	15
Unknown	8	-	-	-	1	7	1	-	-	-	-	1
All Ages	41,826	6,022	3,617	7,300	24,716	171	36,800	3,356	2,483	20,625	10,276	60

[1] Includes legally separated.

Table 2.3
Number of Deaths by Race[1], Michigan Residents, 1970-1985

YEAR	ALL RACES	WHITE	BLACK	AMERICAN INDIAN	OTHER[2]
1970	76,321	67,270	8,731	127	54
1971	77,395	67,847	9,259	128	45
1972	79,210	69,598	9,409	126	40
1973	78,522	68,502	9,641	121	54
1974	76,143	66,600	9,233	128	58
1975	74,522	65,191	9,024	118	60
1976	75,801	66,334	9.146	125	70
1977	74,144	64,816	9,038	140	53
1978	74,773	65,149	9,254	152	72
1979	73,480	63,955	9,188	129	75
1980	74,991	64,897	9,704	137	93
1981	75,818	65,559	9,950	127	78
1982	75,536	65,259	9,941	148	101
1983	76,639	66,103	10,178	163	121
1984	76,401	65,732	10,359	129	115
1985	78,635	67,426	10,903	130	116

[1] Deaths with race not stated included in total column only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Chinese, Japanese, Filipino, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977 and with "Other" since 1978.

1985 deaths of white persons numbered 67,426 and accounted for 85.7 percent of all deaths, while deaths of black persons constituted 13.9 percent of the state total.

Michigan resident deaths in 1985 are tabulated by age, race, and sex in Table 2.4. Of the 78,635 Michigan resident deaths that occurred in 1985, 41,826 (53.2 percent) occurred to males and 36,800 occurred to females (9 records had sex not stated). The median age at death for males was 70 years, compared to a significantly higher figure of 77 years for females. The median age at death was 74 years for whites, compared to 65 years for persons of other races.

In 1985, 24,418 or 31.1 percent of all deaths occurred to persons under the age of 65. The proportion dying under age 65 was greater for males than females and greater for other than white persons than for white persons. For deaths of white persons 33.7 percent of the males and 21.6 percent of the females died before age 65. For deaths of other than white persons 55.4 percent of the males and 42.6 percent of the females died before age 65.

Since about ninety-one percent of the population is below age 65 a better reflection of the probability of living to age 65 is obtained from appendix Tables 4.19 – 4.27. Based on current age-specific death rates, 74.5 percent of white males born in 1985 would survive to age 65. The percentages are 85.2, 57.0 and 74.5 respectively for white females, other than white males and other than white females.

Unadjusted, age-specific, and age-adjusted death rates by race and sex are presented in Table 2.5. The unadjusted rate for males of 945.9 was 19.9 percent above that for females while the age-adjusted rate for males was 76.9 percent higher. The population subgroup with the lowest unadjusted death rate was other than white females (661.5) and the highest unadjusted rate was experienced by other than white males (979.6). Age-adjusting the data results in a quite different relationship, however, with the age-adjusted rate being lowest for white females and highest for other than white males.

The age-specific death rates for all males and all females displayed in Figure 2.2 indicate a similar pattern. The rates for both sexes declined from birth to a low for ages 1-14 years. The rate for 15–24 year olds was much higher than for 1–14 year olds in both sexes (2.6 and 1.4 times as high, respectively, for males and females). The rates for both sexes rose through the terminal age group (85 years and over). The rates for males were consistently above those for females with the greatest relative differential occurring in the age group 15–24 years, where the rate for males was 2.7 times that for females.

A comparison by race of 1985 age-specific death rates for males is graphically presented in Figure 2.3. Rates for males of both races increased dramatically from the age group 1–14 years to the age group 15–24 years. Between ages 15–24 and 25–34 the rate for white males increased by 27.7 percent, while the corresponding increase for other than white males was 83.9 percent. Rates for other than white males were above those for white males at all ages prior to 75 years. The largest relative differential was for persons from 25 through 34 years of age, where the rate for other than white males was 3.5 times that of white males. Beyond age 74 the rates for white males were higher. The overall death rate of 979.6 per 100,000 for other than white males was 4.2 percent higher than the rate for white males (940.1). This is a reflection of the higher death rate for other than white young persons and the younger age distribution of the other than white male population. The age-adjusted death rate for other than white males, which is a better indicator of relative mortality, was 47.8 percent higher than that for white males.

Table 2.4
Number of Deaths by Age, Race, and Sex[1], Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1575	923	645	1053	608	443	521	315	201	1	-	1
1-4	315	194	121	245	159	86	70	35	35	-	-	-
5-9	183	103	80	143	79	64	38	23	15	2	1	1
10-14	202	131	71	155	98	57	46	32	14	1	1	-
15-19	667	481	186	473	324	149	193	157	36	1	-	1
20-24	870	648	222	629	473	156	240	175	65	1	-	1
25-29	917	652	265	604	434	170	312	217	95	1	1	-
30-34	1129	777	352	673	467	206	455	309	146	1	1	-
35-39	1212	800	412	813	529	284	397	270	127	2	1	1
40-44	1384	892	492	976	622	354	406	268	138	2	2	-
45-49	1807	1132	675	1376	865	511	429	267	162	2	-	2
50-54	2702	1730	972	2151	1399	752	543	325	218	8	6	2
55-59	4696	2908	1787	3868	2418	1449	823	485	338	5	5	-
60-64	6759	4095	2664	5664	3449	2215	1091	644	447	4	2	2
65-69	8345	4986	3359	7141	4283	2858	1198	698	500	6	5	1
70-74	9883	5786	4097	8618	5041	3577	1260	743	517	5	2	3
75-79	10432	5505	4927	9292	4900	4392	1135	600	535	5	5	-
80-84	10175	4779	5396	9249	4358	4891	918	417	501	8	4	4
85-89	8301	3196	5104	7715	2972	4742	584	223	361	2	1	1
90+	7072	2100	4972	6585	1949	4636	485	151	334	2	-	2
Not Stated	9	8	1	3	3	-	5	4	1	1	1	-
All Ages	78635	41826	36800	67426	35430	31992	11149	6358	4786	60	38	22
Median Age At Last Birthday	73	70	77	74	71	78	65	62	68	61	60	65

[1] Deaths with sex not stated are included only in the total column.

Table 2.5
Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	865.2	945.9	788.8	874.7	940.1	812.1	812.0	979.6	661.5
Under 1 Year	1177.3	1358.1	989.4	965.8	1089.8	836.1	2113.8	2565.3	1657.0
1-14 Years	39.3	46.8	31.3	38.7	46.5	30.4	41.6	48.3	34.8
15-24 Years	84.2	122.6	45.1	71.3	101.4	40.2	155.9	246.5	70.9
25-34 Years	124.2	175.7	74.0	91.9	129.5	54.1	300.8	453.2	173.4
35-44 Years	259.0	343.6	177.3	206.8	268.6	146.1	593.5	857.4	365.3
45-54 Years	522.4	683.1	370.8	470.7	615.5	331.0	869.5	1180.0	617.2
55-64 Years	1296.2	1690.2	948.4	1219.5	1598.2	884.0	1887.1	2411.8	1436.8
65-74 Years	3170.2	4317.5	2290.8	3078.4	4199.0	2219.7	3919.3	5282.3	2871.6
75-84 Years	7299.1	9945.0	5769.8	7266.2	10012.4	5705.2	7609.4	9371.8	6422.4
85 Years and Over	16669.4	19079.3	15630.0	16757.0	19240.1	15693.3	15583.3	17205.3	14824.3
Age-Adjusted Rate[2]	589.7	779.6	440.8	554.4	734.2	415.5	819.7	1085.5	604.2

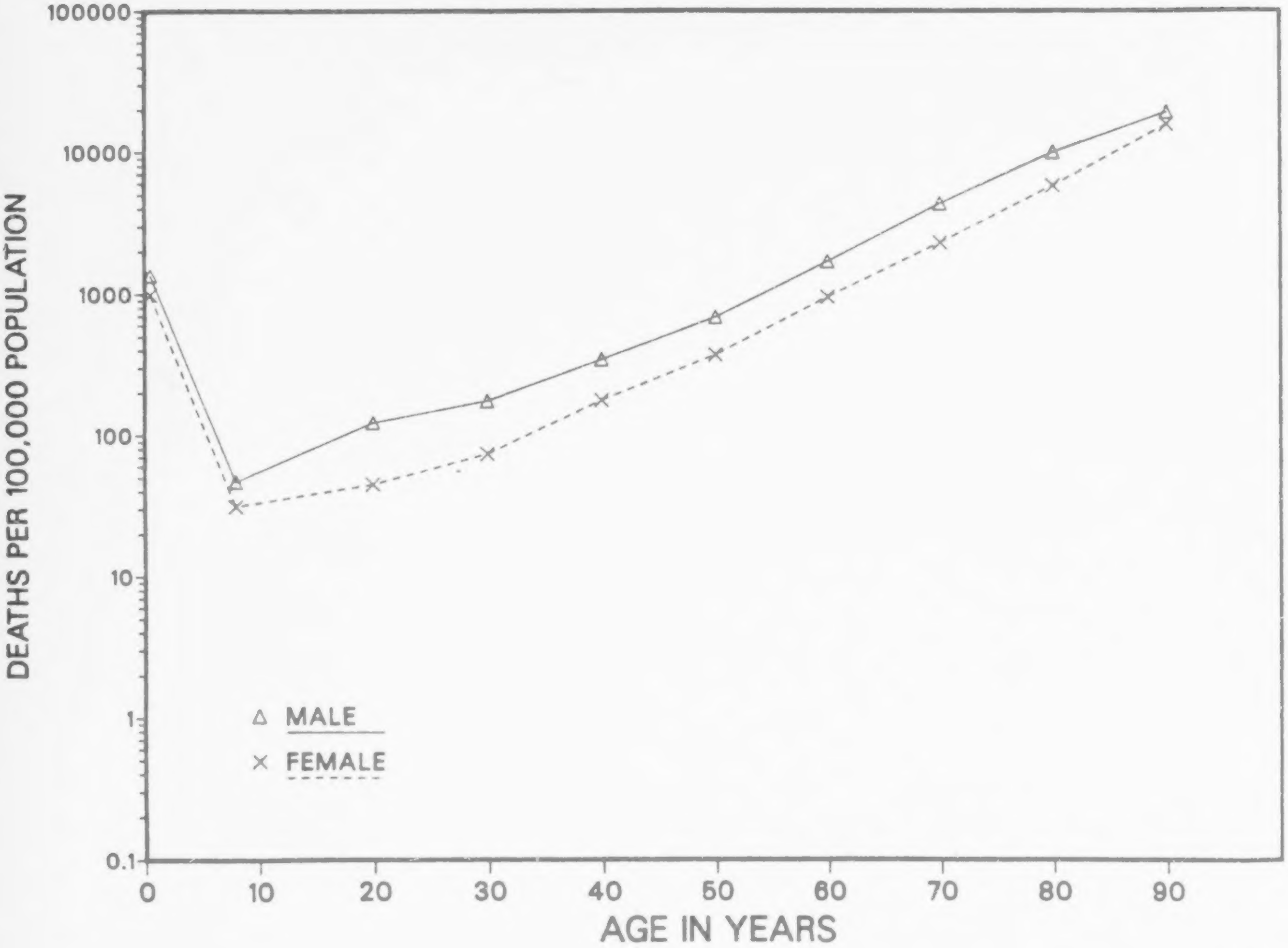
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.2
AGE-SPECIFIC DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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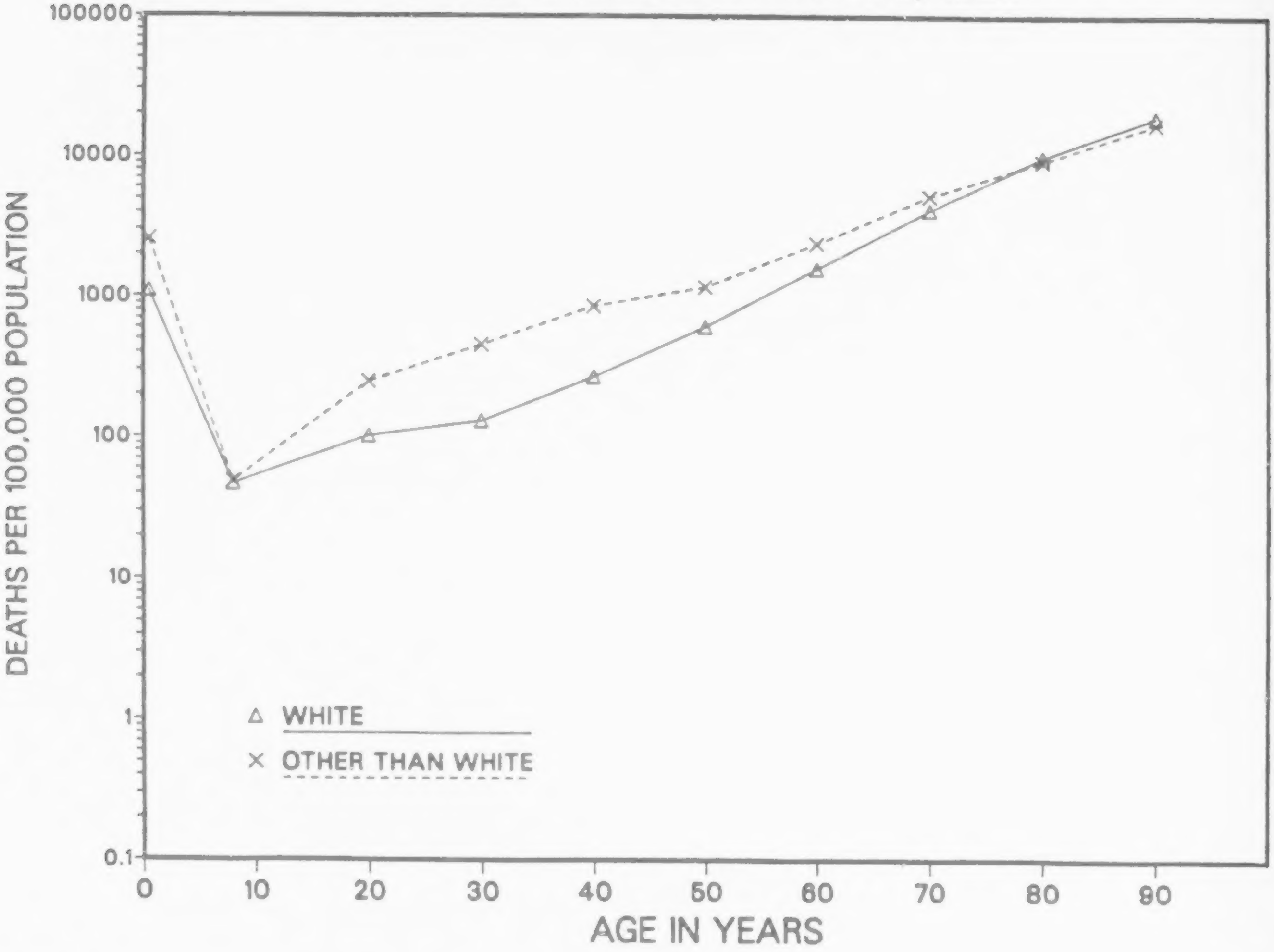
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.3
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1985



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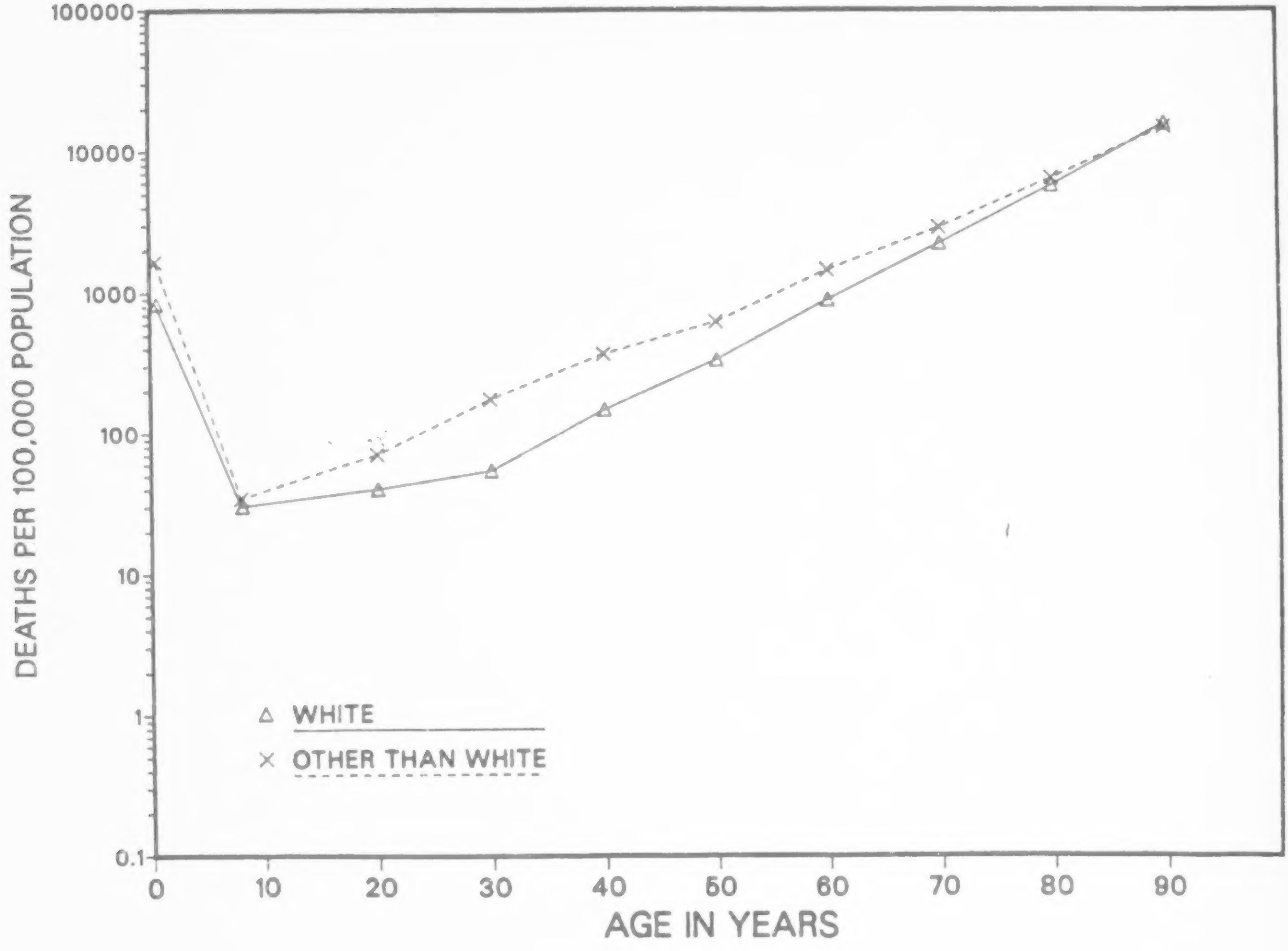
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Rates for other than white females were higher than those for white females at all ages prior to 85 years (Figure 2.4). For women from 25 through 44 years, the rates for other than white females were 2.5 to 3.2 times the rate for white females. The death rate for all ages was 812.1 for white females and 661.5 for other than white females, reflecting the greater concentration of the white female population in the older age intervals with relatively high death rates. After adjusting for differences in the age distributions of the populations, the rate for other than white females was 45.4 percent greater than that for their white counterparts.

Age-adjusted death rates for other than white persons were considerably higher than comparable rates for white persons throughout the period 1970–1985 (Table 2.6). Age-adjusted rates for other than white males ranged between 34 percent (in 1978) and 48 percent (in 1985) higher than comparable rates for white males in Michigan. For females this differential is even greater with the rate for other than white women exceeding that for white women by 34 percent (in 1975) to 49 percent (in 1971). In 1985 the differential for females was 45.4 percent.

Declines have occurred since 1970 both in Michigan and the United States in age-adjusted death rates in each race-sex subgroup. Michigan's age-adjusted rate for the population as a whole declined by 17.8 percent between 1970 and 1985 while the estimated decline between 1970 and 1985 for the United States was 23.3 percent. The relative decline in Michigan was slightly less for the other than white population while it was greater for the United States other than white population. Revised rates based upon revisions to the 1980 census of the population indicate the rates for Michigan to be above national statistics since 1981 for all race/sex groupings. The greatest differential is in evidence with the other than white rates. In 1985 these rates were above U.S. figures by 19.3 percent and 15.2 percent for males and females, respectively.

FIGURE 2.4
AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1985



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Table 2.6
Age-Adjusted Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	717.5	925.9	537.3	685.5	889.4	510.8	961.5	1201.7	744.8
	1971	707.9	922.9	524.0	672.5	881.2	495.7	969.6	1226.9	739.3
	1972	711.1	928.2	526.4	677.2	888.0	499.4	954.7	1220.4	719.6
	1973	694.3	906.3	513.7	658.4	362.6	486.0	949.5	1223.6	709.2
	1974	660.7	865.1	488.0	628.4	824.6	464.2	885.2	1153.2	651.4
	1975	640.2	840.3	472.4	610.1	800.5	452.0	846.1	1122.0	607.8
	1976	636.1	838.5	469.1	607.2	801.4	448.5	835.0	1100.7	608.1
	1977	614.4	814.8	449.4	587.3	781.6	428.8	802.2	1049.4	592.9
	1978	606.3	797.8	449.8	578.7	765.7	426.8	798.9	1025.7	608.9
	1979	585.4	775.6	431.4	557.9	742.5	409.7	773.0	1007.6	577.6
	1980	588.0	773.9	438.7	557.1	735.5	414.9	797.3	1045.8	594.3
	1981	584.5	769.0	437.9	554.0	731.7	413.8	789.7	1028.3	595.8
	1982	576.1	760.2	431.0	545.5	722.9	407.3	777.9	1011.6	588.2
	1983	580.3	761.9	437.8	548.5	722.6	413.4	788.9	1028.4	595.5
	1984	576.4	755.5	437.3	543.9	714.1	413.3	786.6	1036.5	587.3
	1985	589.7	779.6	440.8	554.4	734.2	415.5	819.7	1085.5	604.2
U.S.	1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1231.4	770.8
	1971	697.6	913.3	519.1	663.7	876.0	489.1	959.5	1206.7	749.8
	1972	698.0	918.0	516.6	664.0	879.3	487.6	958.6	1223.1	737.1
	1973	687.3	905.9	508.1	654.0	868.5	479.3	942.2	1199.5	728.1
	1974	659.5	870.9	487.0	629.0	836.1	461.0	889.6	1142.4	680.5
	1975	630.4	837.2	462.5	602.2	804.3	439.0	840.6	1090.1	634.5
	1976	618.5	820.9	455.0	591.3	789.3	432.5	818.5	1063.4	618.3
	1977	602.1	801.3	441.8	575.7	770.6	419.6	796.7	1036.1	601.8
	1978	595.0	791.4	437.4	569.5	761.1	416.4	780.0	1021.0	585.8
	1979	577.0	768.6	423.1	551.9	738.4	402.5	757.1	994.8	566.9
	1980	585.8	777.2	432.6	559.4	745.3	411.1	774.2	1015.1	582.6
	1981	568.2	753.3	420.4	544.6	724.4	401.4	732.6	964.3	549.4
	1982	553.8	733.1	411.2	531.8	706.0	393.3	704.6	928.4	529.3
	1983	550.5	725.3	411.5	528.0	698.4	392.7	703.1	916.3	535.2
	1984	545.9	716.7	409.6	523.6	689.9	391.3	694.5	904.4	529.0
	1985[3]	547.7	717.4	408.3	523.2	689.5	390.0	694.8	909.8	524.7

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

LEADING CAUSES OF DEATH

Deaths assigned to the 10 leading causes accounted for 84.6 percent of all deaths in 1985. Causes of death since 1979 are classified according to the Ninth Revision International Classification of Diseases (ICD-9) published by the World Health Organization. The causes-of-death from 1900 through 1978 have been coded based on earlier revisions of the International Classification of Disease. During the twentieth century there have been nine revisions published in 1900, 1909, 1920, 1929, 1939, 1948, 1955, 1968 and 1979. The first revision was used in Michigan in 1900 to code cause of death starting with 1898 deaths. Between 1929 and 1939 data were coded using the fourth revision. It is unclear if and/or when the second and third revisions were used in Michigan. The fifth through eight revisions were used from 1940 through 1949, 1950 through 1957, 1958 through 1967, and 1968 through 1978, respectively. The cause-of-death ranking procedure used in Michigan is identical to that used by the National Center for Health Statistics (NCHS). It is based on a *"List of 72 Selected Causes of Death,"* which NCHS constructed by combining titles in the *"List of 282 Selected Causes of Death."* This latter list, which is also used in this publication, was constructed by aggregating the detailed titles of ICD-9.

The numbers of deaths and the death rates for the 10 leading causes for 1985 are shown in Table 2.7, and the percentage of total deaths resulting from each of these causes is illustrated in Figure 2.5. The ranking of the 10 leading causes for 1985 was the same as that for 1984. In 1981 through 1983 chronic liver disease and cirrhosis was ranked 9th and atherosclerosis was ranked 8th. In 1985 the order of these two causes has been reversed. Crude death rates in Michigan were higher in 1985 than in 1984 for seven of the ten leading causes. The rates were higher in 1985 for deaths due to diseases of the heart, malignant neoplasms, accidents and adverse effects, chronic obstructive pulmonary diseases and allied conditions, pneumonia and influenza, chronic liver disease and cirrhosis and atherosclerosis. The rates were lower for cerebrovascular diseases, diabetes mellitus and suicide.

The order of the 10 leading causes for the United States in 1985 was similar to that for Michigan. The only difference was in the order of the causes ranked 8th, 9th and 10th. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate was slightly lower than the national rate. Nonetheless, Michigan's rates for heart disease, chronic liver disease and cirrhosis and atherosclerosis were higher than comparable national rates (Table 2.7).

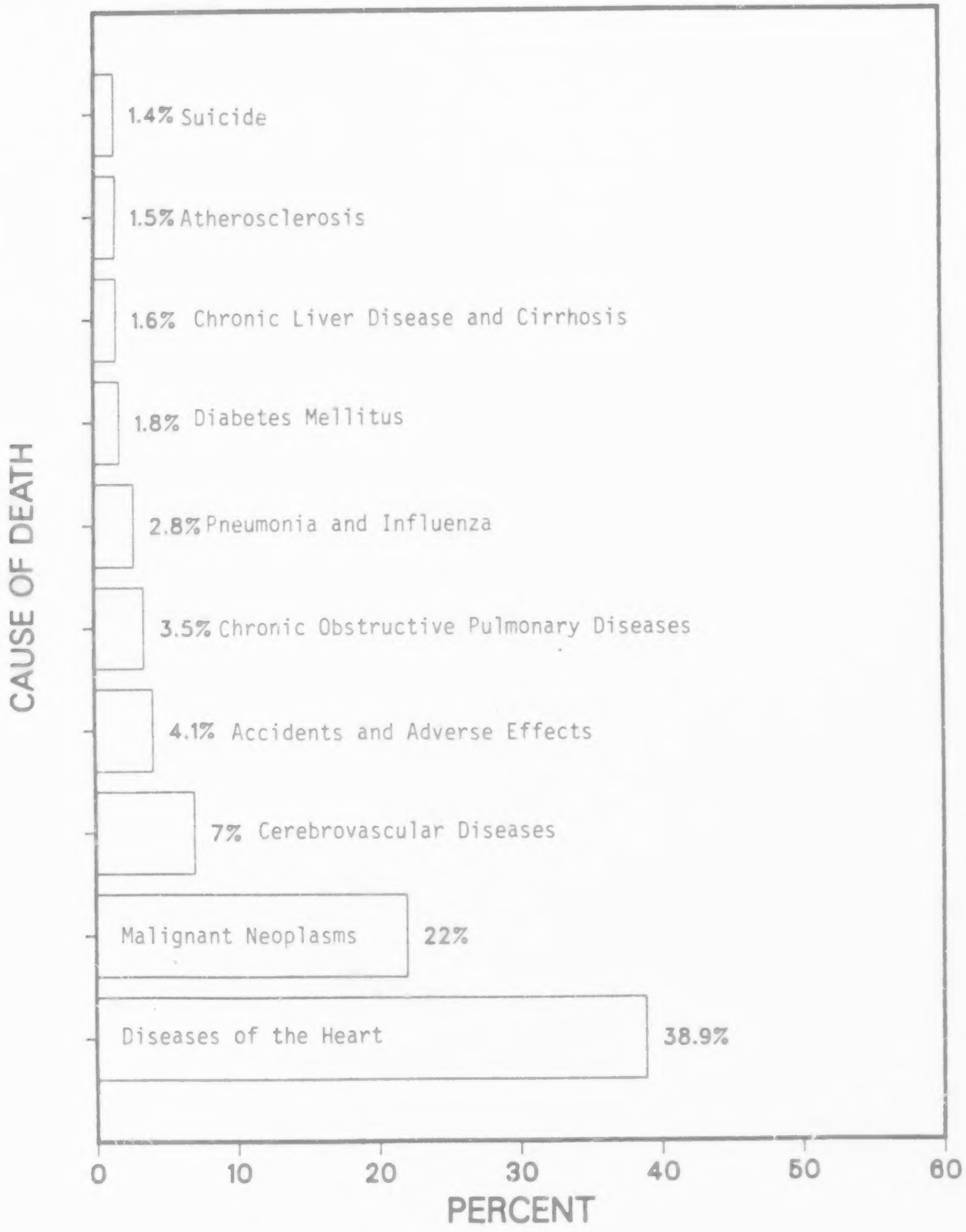
During the years 1968-1978 the Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA-8) was used to classify causes of death. The introduction of the Ninth Revision in 1979 resulted in a change in the ranking of the 10 leading causes between 1978 and 1979. The ranking of the four leading causes of death, heart disease, cancer, stroke, and accidents, has not changed. However, the fifth leading cause of death since 1979, chronic obstructive pulmonary diseases and allied conditions, is a new category, comparable to the Eighth Revision categories of bronchitis, emphysema, asthma, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema. This latter category was used increasingly by physicians during the 1970's in preference to more specific categories. During the years in which the Eighth Revision was used, bronchitis, emphysema, and asthma were grouped together for purposes of ranking, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema was not used in ranking. The causes ranked 6th to 10th since 1979 are the same as the causes ranked 5th to 9th in 1978, although the order is slightly

Table 2.7
Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1985

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.[1]	MICHIGAN	U.S.[1]
1	Diseases of the Heart	30,618	775,890	336.9	325.0
2	Malignant Neoplasms	17,281	457,670	190.1	191.7
3	Cerebrovascular Diseases	5,528	152,710	60.8	64.0
4	Accidents and Adverse Effects	3,228	92,070	35.5	38.6
5	Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,762	74,420	30.4	31.2
6	Pneumonia and Influenza	2,229	66,630	24.5	27.9
7	Diabetes Mellitus	1,387	38,620	15.3	16.2
8	Chronic Liver Disease and Cirrhosis	1,256	26,770	13.8	11.2
9	Atherosclerosis	1,173	23,580	12.9	9.9
10	Suicide	1,088	28,620	12.0	12.0
	Sub Total	66,550	1,736,980	732.3	727.7
	All Other Causes	12,085	347,020	133.0	147.1
	Total	78,635	2,084,000	865.2	874.8

[1] United States data are estimates based on a 10 percent sample of deaths.

FIGURE 2.5
LEADING CAUSES OF DEATH, MICHIGAN RESIDENTS, 1985



different in 1981 through 1983. The 10th leading cause of death in 1978, homicide, is no longer ranked among the top 10. The number of homicides in 1985 was 1062.

Table 4.8 shows the numbers of deaths and death rates for each year during this century for several major causes including seven causes currently ranked among the 10 leading causes of death. There has been no change in the ranking of the four leading causes since 1950. From 1950 through 1978 the ranks of 5th and 6th were held by diabetes mellitus and pneumonia and influenza, with pneumonia and influenza ranking 5th in 19 of the 29 years. For the past eleven years pneumonia and influenza has ranked above diabetes. Atherosclerosis, previously termed arteriosclerosis, has consistently been among the ten leading causes of death, ranking 7th in 1950 and 9th in 1985. The 8th leading cause of death in 1985, chronic liver disease and cirrhosis (formerly titled cirrhosis of the liver) was not among the ten leading causes of death in 1950. This cause ranked 10th in 1955 and has been among the ten most frequent causes consistently since 1960. It was the 7th leading cause each year from 1969 through 1978. Suicide, the 10th leading cause in 1985, first ranked in the top ten in 1963 when it was the 10th leading cause. In 1985, seven of the ten leading causes of death were chronic conditions, one was an acute disease category, and two were external non-disease groupings.

While the most frequent causes of death among all Michigan residents have changed little in recent years, this does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.8 presents the five most frequent causes of death by age, sex and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. Diseases of the heart are among the most frequent causes in all categories. Malignant neoplasms, accidents and homicides have the next most widespread significance, being present respectively in 26, 25 and 18 of the 32 age-sex-race groupings. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including accidents, suicide and homicide, are predominant killers among persons 1 through 34 years of age. Among persons 35 years and over, chronic conditions are responsible for the majority of deaths.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985

TOTAL POPULATION[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	30,618	336.9
	2. Malignant Neoplasms	17,281	190.1
	3. Cerebrovascular Diseases	5,528	60.8
	4. Accidents	3,228	35.5
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,762	30.4
	All Causes	78,635	865.2
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	811	606.2
	2. Congenital Anomalies	330	246.7
	3. Accidents	35	26.2
	4. Diseases of the Heart	24	17.9
	5. Nephritis, Nephrotic Syndrome and Nephrosis	15	11.2
	All Causes	1,575	1,177.3
1-4 Years	1. Accidents	144	30.4
	2. Congenital Anomalies	32	6.8
	3. Malignant Neoplasms	29	6.1
	4. Homicide	16	3.4
	5. Certain Conditions Originating in the Perinatal Period	12	2.5
	All Causes	315	66.5
5-14 Years	1. Accidents	184	14.1
	2. Malignant Neoplasms	65	5.0
	3. Homicide	28	2.1
	4. Congenital Anomalies	20	1.5
	5. Suicide	14	1.1
	All Causes	385	29.4
15-24 Years	1. Accidents	655	35.9
	2. Homicide	306	16.8
	3. Suicide	208	11.4
	4. Malignant Neoplasms	91	5.0
	5. Diseases of the Heart	48	2.6
	All Causes	1,537	84.2
25-34 Years	1. Acci[illegible]	482	29.3
	2. Homicide	325	19.7
	3. Suicide	243	14.7
	4. Malignant Neoplasms	208	12.6
	5. Diseases of the Heart	154	9.3
	All Causes	2,046	124.2

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

TOTAL POPULATION[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Malignant Neoplasms	1,115	79.9
	2. Diseases of the Heart	1,043	74.8
	3. Accidents	471	33.8
	4. Chronic Liver Disease and Cirrhosis	267	19.1
	5. Homicide	241	17.3
	All Causes	4,403	315.7
50-64 Years	1. Diseases of the Heart	5,062	373.7
	2. Malignant Neoplasms	4,919	363.2
	3. Cerebrovascular Diseases	596	44.0
	4. Chronic Liver Disease and Cirrhosis	479	35.4
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	473	34.9
	All Causes	14,157	1,045.2
65 and Over	1. Diseases of the Heart	24,265	2,555.3
	2. Malignant Neoplasms	10,847	1,142.3
	3. Cerebrovascular Diseases	4,699	494.8
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,216	233.4
	5. Pneumonia and Influenza	1,943	204.6
	All Causes	54,208	5,708.6

[1] Subtotals by sex and race do not add to the grand total as the race was not stated on records for 38 males and 22 females. In addition, the sex was not stated on 4 records for white and 5 other than white persons. Age groups do not add to respective totals because records with age not stated are included only in the total.

[2] Rates may not agree with those shown elsewhere in this section since records of unknown sex and race were randomly allocated prior to rate calculation for the other tables, and were not included in calculations for this table.

[3] Rate per 100,000 population.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

WHITE MALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
All Ages	1. Diseases of the Heart	14,004	371.2
	2. Malignant Neoplasms	7,947	210.7
	3. Cerebrovascular Diseases	1,949	51.7
	4. Accidents	1,850	49.0
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,598	42.4
	All Causes	35,430	939.2
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	287	514.4
	2. Congenital Anomalies	144	258.1
	3. Accidents	16	28.7
	4. Diseases of the Heart	8	14.3
	5. Nephritis, Nephrotic Syndrome and Nephrosis	7	12.5
	All Causes	608	1,089.8
1-4 Years	1. Accidents	74	37.9
	2. Malignant Neoplasms	17	8.7
	3. Congenital Anomalies	15	7.7
	4. Homicide	7	3.6
	5. Certain Conditions Originating in the Perinatal Period	6	3.1
	All Causes	159	81.5
5-14 Years	1. Accidents	89	16.7
	2. Malignant Neoplasms	29	5.4
	3. Homicide	11	2.1
	4. Suicide	10	1.9
	5. Congenital Anomalies	9	1.7
	All Causes	177	33.3
15-24 Years	1. Accidents	436	55.5
	2. Suicide	158	20.1
	3. Homicide	55	7.0
	4. Malignant Neoplasms	44	5.6
	5. Diseases of the Heart	18	2.3
	All Causes	797	101.4
25-34 Years	1. Accidents	324	46.5
	2. Suicide	176	25.2
	3. Malignant Neoplasms	73	10.5
	4. Homicide	65	9.3
	5. Diseases of the Heart	50	7.2
	All Causes	901	129.2

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

WHITE MALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Diseases of the Heart	644	108.1
	2. Malignant Neoplasms	427	71.7
	3. Accidents	278	46.7
	4. Suicide	163	27.4
	5. Chronic Liver Disease and Cirrhosis	99	16.6
	All Causes	2,016	338.4
50-64 Years	1. Diseases of the Heart	3,025	530.5
	2. Malignant Neoplasms	2,218	388.9
	3. Chronic Obstructive Pulmonary Diseases and Allied Conditions	254	44.5
	4. Chronic Liver Disease and Cirrhosis	252	44.2
	5. Accidents	243	42.6
	All Causes	7,266	1,274.1
65 and Over	1. Diseases of the Heart	10,253	3,012.4
	2. Malignant Neoplasms	5,136	1,509.0
	3. Cerebrovascular Diseases	1,648	484.2
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,329	390.5
	5. Pneumonia and Influenza	858	252.1
	All Causes	23,503	6,905.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

OTHER THAN WHITE MALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[1]
All Ages	1. Diseases of the Heart	1,902	292.7
	2. Malignant Neoplasms	1,302	200.4
	3. Homicide	576	88.7
	4. Accidents	339	52.2
	5. Cerebrovascular Diseases	303	46.6
	All Causes	6,358	978.6
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	189	1,524.7
	2. Congenital Anomalies	44	355.0
	3. Accidents	10	80.7
	4. Diseases of the Heart	4	32.3
	5-6. Intestinal Infections - Meningitis	2	16.1
	All Causes	315	2,541.1
1-4 Years	1. Accidents	12	25.1
	2. Certain Conditions Originating in the Perinatal Period	5	10.5
	3-4. Homicide - Congenital Anomalies	4	8.4
	5. Diseases of the Heart	2	4.2
	All Causes	35	73.2
5-14 Years	1. Accidents	32	23.1
	2. Homicide	9	6.5
	3. Malignant Neoplasms	3	2.2
	4-5. Suicide - Chronic Obstructive Pulmonary Diseases and Allied Conditions	2	1.4
	All Causes	55	39.7
15-24 Years	1. Homicide	189	140.3
	2. Accidents	59	43.8
	3. Suicide	24	17.8
	4. Diseases of the Heart	15	11.1
	5. Malignant Neoplasms	8	5.9
	All Causes	332	246.5
25-34 Years	1. Homicide	179	154.2
	2. Accidents	66	56.9
	3. Diseases of the Heart	51	43.9
	4. Chronic Liver Disease and Cirrhosis	31	26.7
	5. Suicide	30	25.8
	All Causes	526	453.2

Table 2.8
Leading Causes of Death and Cause-Specific Rates
by Age, Sex, and Race,
Michigan Residents, 1985 (Continued)

OTHER THAN WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Diseases of the Heart	154	179.3
	2. Homicide	141	164.1
	3. Chronic Liver Disease and Cirrhosis	88	102.4
	4 Malignant Neoplasms	77	89.6
	5. Accidents	67	78.0
	All Causes	805	937.0
50-64 Years	1. Diseases of the Heart	513	694.2
	2. Malignant Neoplasms	426	576.5
	3. Cerebrovascular Diseases	83	112.3
	4. Chronic Liver Disease and Cirrhosis	75	101.5
	5. Accidents	51	69.0
	All Causes	1,454	1,967.6
65 and Over	1. Diseases of the Heart	1,160	2,874.8
	2. Malignant Neoplasms	769	1,905.8
	3. Cerebrovascular Diseases	169	418.8
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	127	314.7
	5 Pneumonia and Influenza	84	208.2
	All Causes	2,832	7,018.6

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

WHITE FEMALES’			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE’
All Ages	1. Diseases of the Heart	13,009	330.0
	2. Malignant Neoplasms	7,039	178.6
	3. Cerebrovascular Diseases	2,868	72.8
	4. Pneumonia and Influenza	1,003	25.4
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	912	23.1
	All Causes	31,992	811.6
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	206	386.2
	2. Congenital Anomalies	116	217.5
	3. Diseases of the Heart	10	18.7
	4. Accidents	7	13.1
	5. Nephritis, Nephrotic Syndrome and Nephrosis	5	9.4
	All Causes	443	830.5
1-4 Years	1. Accidents	40	21.7
	2-3. Congenital Anomalies - Malignant Neoplasms	9	4.9
	4. Pneumonia and Influenza	4	2.2
	5-6. Diseases of the Heart - Homicide	3	1.6
	All Causes	86	46.7
5-14 Years	1. Accidents	49	9.8
	2. Malignant Neoplasms	28	5.6
	3. Congenital Anomalies	11	2.2
	4-5. Diseases of the Heart - Homicide	5	1.0
	All Causes	121	24.1
15-24 Years	1. Accidents	140	18.4
	2. Malignant Neoplasms	34	4.5
	3. Homicide	26	3.4
	4. Suicide	24	3.2
	5. Diseases of the Heart	9	1.2
	All Causes	305	40.1
25-34 Years	1. Malignant Neoplasms	95	13.7
	2. Accidents	78	11.2
	3. Suicide	32	4.6
	4. Homicide	30	4.3
	5. Diseases of the Heart	28	4.0
	All Causes	376	54.1

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Malignant Neoplasms	497	81.3
	2. Diseases of the Heart	170	27.8
	3. Accidents	101	16.5
	4. Cerebrovascular Diseases	53	8.7
	5. Suicide	46	7.5
	All Causes	1,149	188.1
50-64 Years	1. Malignant Neoplasms	1,947	312.2
	2. Diseases of the Heart	1,186	190.2
	3. Cerebrovascular Diseases	211	33.8
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	162	26.0
	5. Chronic Liver Disease and Cirrhosis	117	18.8
	All Causes	4,416	708.2
65 and Over	1. Diseases of the Heart	11,598	2,262.8
	2. Malignant Neoplasms	4,427	863.7
	3. Cerebrovascular Diseases	2,586	504.5
	4. Pneumonia and Influenza	924	180.3
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	718	140.1
	All Causes	25,096	4,896.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

OTHER THAN WHITE FEMALES[2]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[1]
All Ages	1. Diseases of the Heart	1,678	231.7
	2. Malignant Neoplasms	987	136.3
	3 Cerebrovascular Diseases	404	55.8
	4. Homicide	136	18.8
	5. Diabetes Mellitus	133	18.4
	All Causes	4,786	660.7
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	125	1,020.3
	2. Congenital Anomalies	22	179.6
	3-5. Diseases of the Heart - Nephritis, Nephrotic Syndrome and Nephrosis - Accidents	2	16.3
	All Causes	201	1,640.7
1-4 Years	1. Accidents	18	38.3
	2. Congenital Anomalies	4	8.5
	3. Malignant Neoplasms	3	6.4
	4. Homicide	2	4.3
	5-7. Benign Neoplasms - Diseases of the Heart - Chronic Obstructive Pulmonary Diseases and Allied Conditions	1	2.1
	All Causes	35	74.5
5-14 Years	1. Accidents	12	8.7
	2. Malignant Neoplasms	4	2.9
	3. Homicide	3	2.2
	4-5. Diseases of the Heart - Chronic Obstructive Pulmonary Diseases and Allied Conditions	2	1.5
	All Causes	29	21.1
15-24 Years	1. Homicide	36	25.0
	2. Accidents	20	13.9
	3. Diseases of the Heart	6	4.2
	4. Malignant Neoplasms	5	3.5
	5-7. Cerebrovascular Disease - Pneumonia and Influenza - Nephritis, Nephrotic Syndrome and Nephrosis	3	2.1
	All Causes	101	70.3
25-34 Years	1. Homicide	51	36.7
	2. Diseases of the Heart	25	18.0
	3. Malignant Neoplasms	22	15.8
	4. Chronic Liver Disease and Cirrhosis	15	10.8
	5 Accidents	12	8.6
	All Causes	241	173.4

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1985 (Continued)

OTHER THAN WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Malignant Neoplasms	114	111.5
	2. Diseases of the Heart	74	72.4
	3. Chronic Liver Disease and Cirrhosis	38	37.2
	4. Cerebrovascular Diseases	30	29.3
	5. Homicide	27	26.4
	All Causes	427	417.6
50-64 Years	1. Diseases of the Heart	327	377.3
	2. Malignant Neoplasms	326	376.2
	3. Cerebrovascular Diseases	69	79.6
	4. Chronic Liver Disease and Cirrhosis	35	40.4
	5. Diabetes Mellitus	34	39.2
	All Causes	1,003	1,157.3
65 and Over	1. Diseases of the Heart	1,241	2,203.8
	2. Malignant Neoplasms	512	909.2
	3. Cerebrovascular Diseases	293	520.3
	4. Diabetes Mellitus	85	150.9
	5. Pneumonia and Influenza	75	133.2
	All Causes	2,748	4,880.0

DISEASES OF THE HEART

The leading cause of death, heart disease, caused the deaths of 30,618 Michigan residents in 1985. This is more than the number of deaths from the next four largest categories combined. There were 518 more deaths from heart disease in 1985 than in 1984. The crude rate of 336.9 deaths per 100,000 population from this cause in 1985 is 1.6 percent higher than the rate of 331.7 in 1984.

The median age of persons who died from heart disease was 76 years, compared to a median of 73 years for deaths from all causes. Of the 30,618 deaths due to diseases of the heart, 52.0 percent were to males. The median age at death for males was 72 years compared to 80 years for females. The median age of 73 years for white males exceeded that for other than white males by 5 years. The median age at death for white females was 81 years, 6 years above that for other than white females (Table 2.9).

Table 2.10 presents death rates for diseases of the heart by age, race and sex. Note that the death rate associated with this cause rises markedly with advancing age. Heart disease was the underlying cause of death for 32 persons below 5 years of age or about 1.7 percent of all deaths in this age group. In contrast, 49.7 percent of all deaths in the age group 85 and over were attributed to this cause in 1985. The heart disease death rate was 8,281.6 among persons 85 years of age or older.

Examination of Table 2.10 reveals that the heart disease death rate for males was substantially higher than that for females (360.1 compared to 314.9 per 100,000 population). The relationship between rates for males and females is graphically displayed in Figure 2.6. The age-specific heart disease death rates for males and females were virtually the same for persons below 25 years of age. Rates for males were above those of females in all other age groups. The greatest relative differentials occurred from age 35 through 64 with rates for males ranging from 2.5 to 3.3 times the corresponding rates for females. The gap between rates for males and females became progressively smaller after age 64. Among persons 85 years of age or over the rate of 8,976.8 for males was 12 percent above that for females (7,981.8). The age-adjusted death rate for males was 1.9 times that for females.

A comparison of 1985 heart disease death rates for males by race is graphically presented in Figure 2.7. Rates for other than white males were higher than those for white males for all age intervals below 75 for which rates can be calculated and lower than rates for white males in all age intervals at age 75 or over. The rate for white males across all ages was 371.6 compared to 293.4 for other than white males. This differential stems from the fact that a greater proportion of the white male population was in the older age groups where heart disease death rates were particularly high. The age-adjusted heart disease death rate for white males was 279.9 in 1985, 15.2 percent below the rate of 330.1 for other than white males.

Heart disease death rates for white and other than white females are displayed in Figure 2.8. Rates for other than white females were greater than those for white females for ages below 85 for which rates can be calculated. After age 44 the relative differentials steadily decreased with advancing age. Beyond age 84 the rate for white females exceeded that for other than white females by 5.4 percent. Although the rate for white females of all ages (330.2) was substantially above the comparable rate for other than white females (231.9), this relationship is reversed when the differing age distributions of the two populations are considered. The age-adjusted rate for other than white females was 196.4 while that for white females was 141.0.

Table 2.9
Deaths Due to Diseases of the Heart by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	24	12	12	18	8	10	6	4	2	-	-	-
1-4	8	4	4	5	2	3	3	2	1	-	-	-
5-9	5	1	4	4	1	3	1	-	1	-	-	-
10-14	4	1	3	2	-	2	2	1	1	-	-	-
15-19	22	16	6	10	7	3	12	9	3	-	-	-
20-24	26	17	9	17	11	6	9	6	3	-	-	-
25-29	46	25	21	21	10	11	25	15	10	-	-	-
30-34	108	76	32	57	40	17	51	36	15	-	-	-
35-39	173	130	43	128	98	30	45	32	13	-	-	-
40-44	362	272	90	288	220	68	74	52	22	-	-	-
45-49	508	396	112	398	326	72	109	70	39	1	-	1
50-54	917	684	233	741	566	175	171	115	56	5	3	2
55-59	1623	1154	469	1338	986	352	280	163	117	5	5	-
60-64	2522	1709	813	2132	1473	659	389	235	154	1	1	-
65-69	3262	2089	1173	2817	1821	996	443	266	177	2	2	-
70-74	4070	2411	1659	3556	2113	1443	511	297	214	3	1	2
75-79	4588	2366	2222	4090	2109	1981	495	254	241	3	3	-
80-84	4708	2065	2643	4277	1886	2391	428	176	252	3	3	-
85-89	3959	1459	2500	3682	1364	2318	277	95	182	-	-	-
90+	3678	1032	2646	3429	960	2469	247	72	175	2	-	2
Not Stated	5	5	-	3	3	-	2	2	-	-	-	-
All Ages	30618	15924	14694	27013	14004	13009	3580	1902	1678	25	18	7
Median Age At Last Birthday	76	72	80	77	73	81	71	68	75	65	62	72

Table 2.10
Heart Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	336.9	360.1	314.9	350.4	371.6	330.2	261.0	293.4	231.9
Under 1 Year	17.9	17.6	18.3	16.5	14.3	18.7	24.3	*	*
1-14 Years	1.0	0.7	1.3	0.8	*	1.2	1.6	*	*
15-24 Years	2.6	3.6	1.7	1.7	2.3	1.2	7.5	11.1	4.2
25-34 Years	9.3	12.4	6.4	5.6	7.2	4.0	29.8	43.9	18.0
35-44 Years	53.4	81.6	26.1	48.0	74.0	22.4	88.0	133.9	48.2
45-54 Years	165.1	257.8	77.7	152.3	242.7	65.1	251.1	368.8	155.5
55-64 Years	469.0	690.9	273.2	444.1	670.2	243.8	660.9	853.0	496.0
65-74 Years	1275.2	1803.6	870.1	1245.0	1771.7	841.4	1521.5	2063.8	1104.7
75-84 Years	3292.7	4284.9	2719.2	3278.7	4321.6	2685.8	3425.2	3973.1	3056.2
85 Years and Over	8281.6	8976.8	7981.8	8334.0	9087.0	8011.4	7632.0	7692.3	7603.8
Age-Adjusted Rate[2]	208.4	286.2	147.7	201.7	279.9	141.0	255.6	330.1	196.4

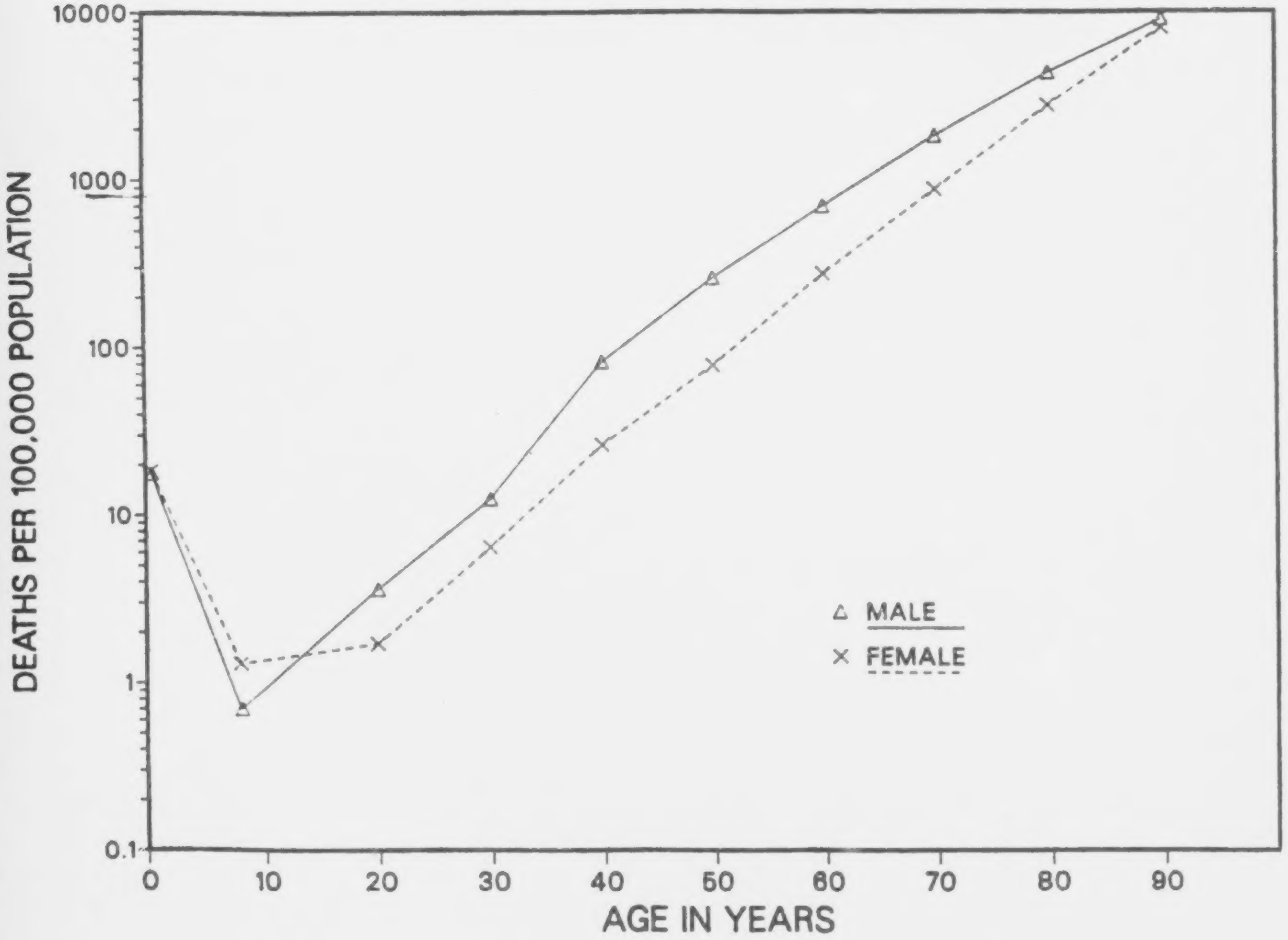
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.6
AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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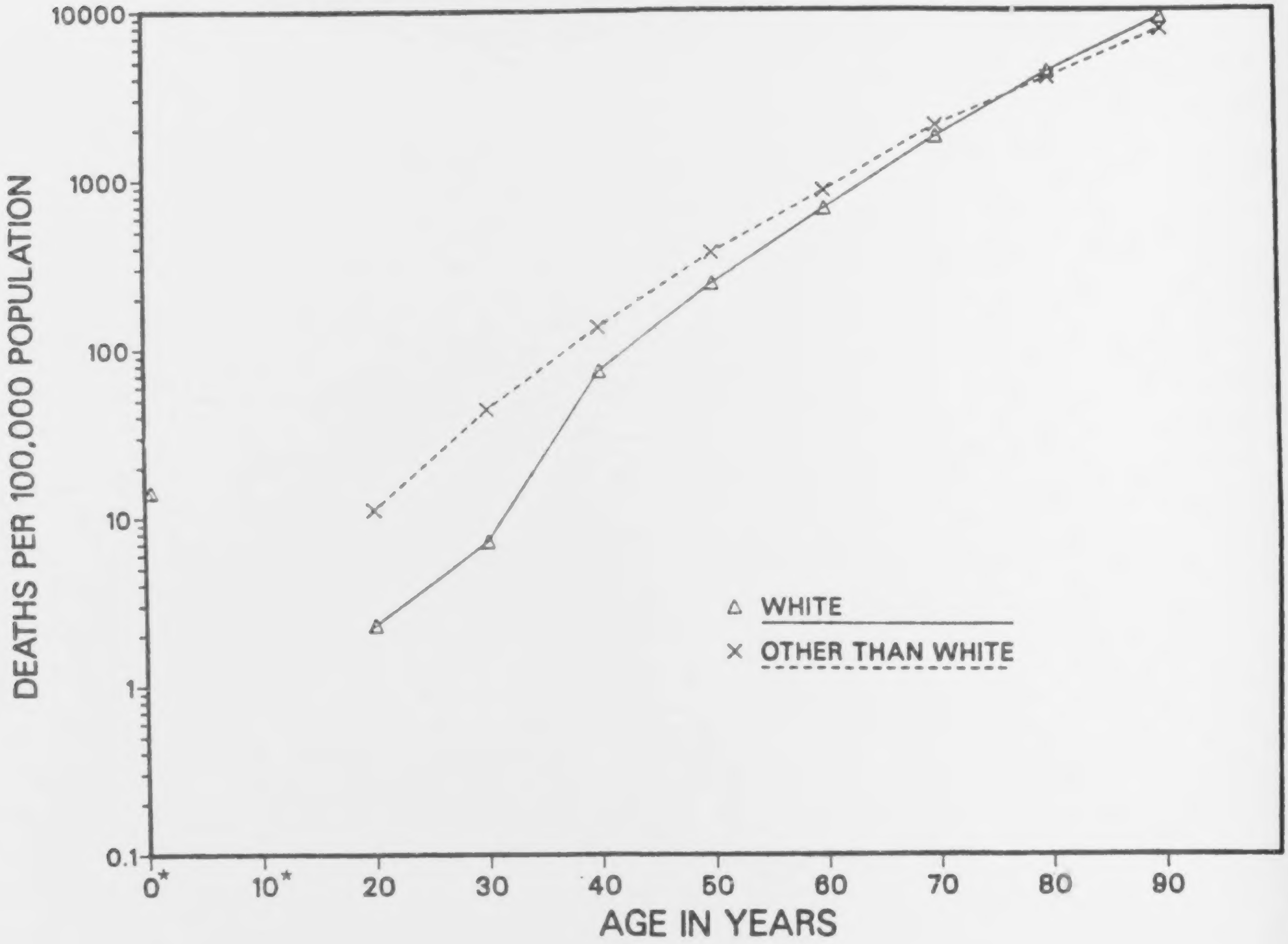
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

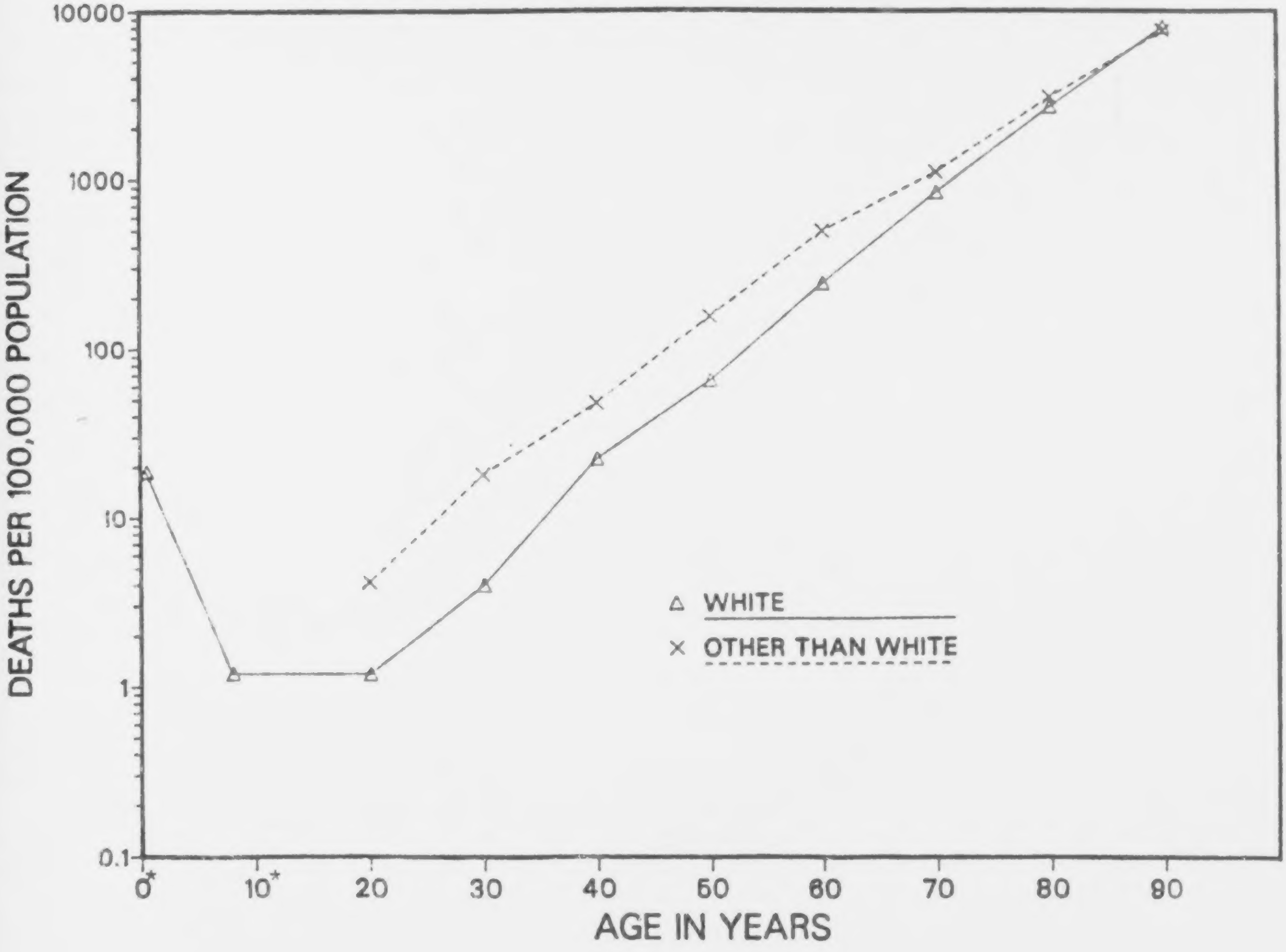
FIGURE 2.7
AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.8
AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century (Figure 2.9). Heart disease death rates rose through the time period 1900–1950, remained relatively stable between 1950 and 1961, peaked between 1962 and 1972, decreased between 1973 and 1979 and increased after 1979. The highest rate observed during the century was 343.1 in 1965. The rate of 336.9 for 1985 was 2 percent below the peak rate observed in 1965. The rate for Michigan was consistently close to the national rate until 1947. From 1947 through 1981 the crude rate for Michigan was below that of the nation but by a progressively lesser degree in recent years. From 1982 through 1985 rates for Michigan were above the national rates. In 1985 the Michigan rate of 336.9 was 3.7 percent above the national provisional rate of 325.0.

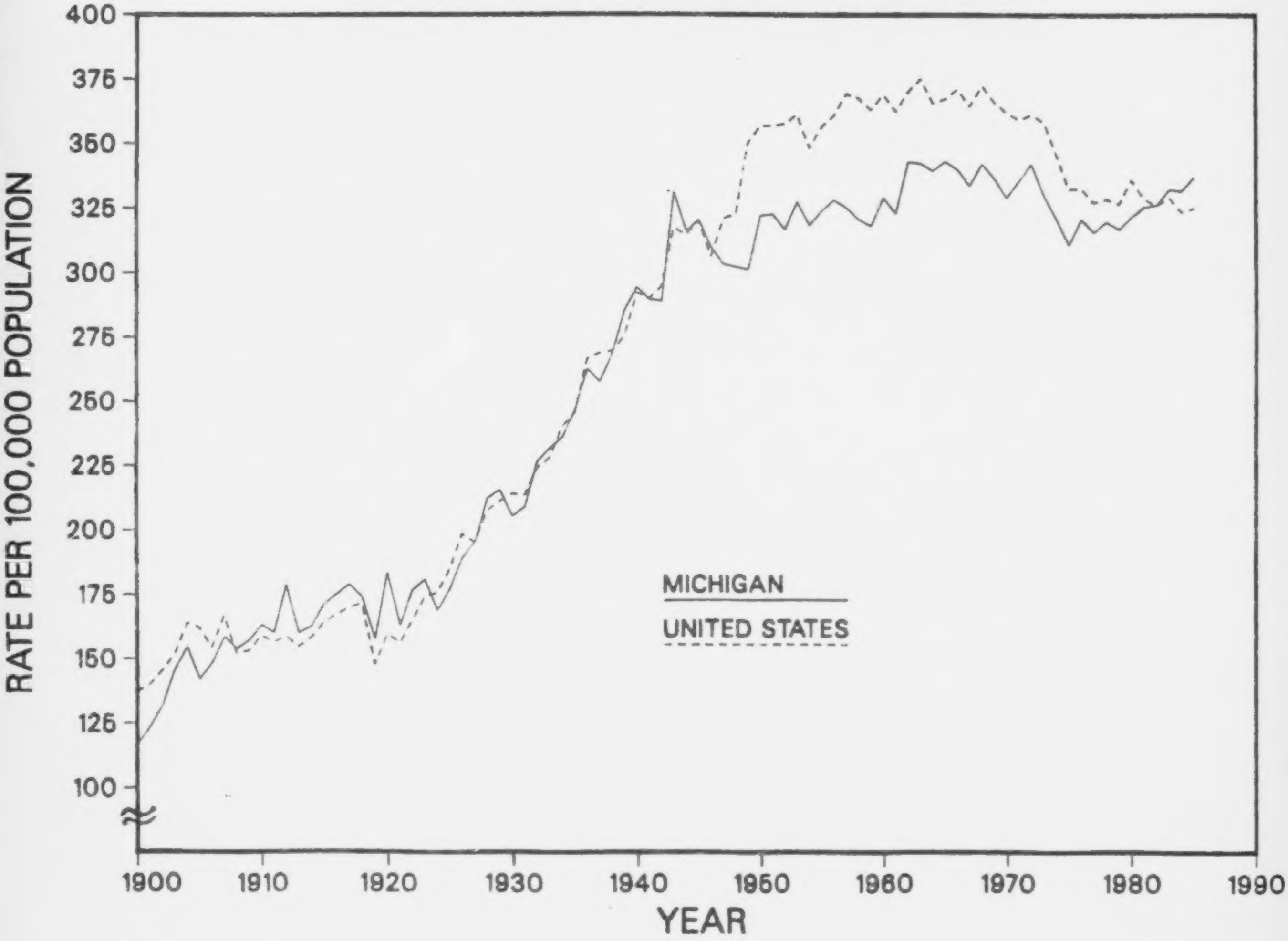
Age-adjusted death rates for diseases of the heart since 1970 are presented in Table 2.11. These data indicate a downward trend in heart disease death rates for the Michigan population as a whole and for white males and females. Between 1970 and 1975 the rates decreased for other than white males and females. However, since 1975 the rates have been generally increasing for the two groups. Between 1970 and 1972 the rate for Michigan remained constant. Since 1972 the rate has declined each year, with the exception of 1976, 1983 and 1985. The age-adjusted death rate for the nation declined each year between 1970 and 1985 except 1980. The age-adjusted rate for Michigan declined by 20 percent between 1970 and 1985 whereas the age-adjusted rate for the nation declined by 28 percent (see Technical Notes). The age-adjusted rate for Michigan has been above that for the nation consistently since 1970. In 1985 Michigan's rate was 14.7 percent above the national provisional rate. Age-adjusted rates for other than white females have been well above those for white females in both Michigan and the United States. In 1985 the Michigan age adjusted rate for other than white females was 39.3 percent above the rate for white females. In Michigan age-adjusted rates for other than white males was slightly below those for white males for most years between 1970 and 1977. After 1977 the Michigan rates for other than white males have been higher than for rates for white males. In 1985 the rate for other than white males was 17.9 percent higher than the rate for white males. Nationally the rates were highest for other than white males, next highest for white males, then for other than white females and lowest for white females each year from 1970 to 1984.

The most prevalent type of heart disease death is acute myocardial infarction (11,225 deaths in 1985), commonly referred to as a "*coronary*" (Table 2.12). The second most frequent is old myocardial infarction and other forms of chronic ischemic heart disease. In 1985 there were 10,630 deaths attributed to this cause. Together, these causes accounted for 71.4 percent of all Michigan resident deaths from heart disease. Of the remaining 8,763 heart disease deaths, 77.7 percent were attributed to all other and ill-defined forms of heart disease (5,520 deaths) and heart failure (1,285 deaths).

The probabilities of eventually dying from heart disease, based on Michigan resident death data from 1983, 1984 and 1985 are 0.407 for males and 0.434 for females at birth. The chance associated with dying from heart disease increases steadily for both sexes with advancing age as certain competing causes of death become less likely. By age 85, the observed probability is 0.474 for males and 0.516 for females. At all ages the probability of death eventually being caused by heart disease is greater for females. These differentials by sex are smallest between ages 35 and 50. The higher probability for females reflects smaller chances of death due to some cause other than heart disease (Figure 2.10).

An apparent inconsistency can be noted by review of Figure 2.6 and Figure 2.10. The heart disease mortality rate for males is higher than that for females over nearly all ages, yet the chance of eventual death due to heart disease is slightly greater for females

FIGURE 2.9
HEART DISEASE DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985 United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.11
Age-Adjusted Heart Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALF	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	260.4	352.2	181.2	257.0	352.5	175.1	280.6	336.6	230.2
	1971	259.7	358.7	175.5	255.9	359.0	168.8	281.8	339.7	229.4
	1972	260.5	355.2	180.3	256.7	353.9	174.7	284.1	356.1	220.6
	1973	247.7	339.2	170.8	243.8	337.8	165.0	273.0	340.4	213.9
	1974	235.6	321.7	163.7	232.6	321.8	158.2	253.8	311.5	203.8
	1975	226.2	312.2	154.5	224.7	313.6	150.8	231.3	290.6	180.2
	1976	228.0	316.6	155.4	225.7	316.9	151.2	241.8	306.6	186.8
	1977	221.5	308.4	150.7	218.2	308.1	145.1	242.6	302.1	192.1
	1978	219.0	302.4	151.2	214.9	301.0	145.2	247.8	307.9	197.8
	1979	215.4	298.5	148.5	211.2	296.2	143.0	243.2	310.7	187.7
	1980	214.9	235.5	150.6	210.0	292.2	144.4	249.5	317.5	195.2
	1981	213.8	298.3	146.7	208.5	295.5	139.6	250.3	314.3	198.3
	1982	210.3	291.2	147.0	204.9	288.2	139.8	247.7	309.1	198.9
	1983	211.1	287.5	151.0	205.3	284.3	143.4	251.4	308.4	206.4
	1984	205.2	280.8	148.6	199.5	275.0	141.4	254.0	320.7	201.0
	1985	208.4	286.2	147.7	201.7	279.9	141.0	255.6	330.1	196.4
U.S.	1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
	1971	249.3	344.1	171.7	245.1	343.5	164.8	280.3	343.2	227.8
	1972	247.9	343.1	170.3	243.5	341.8	163.4	281.1	348.7	225.8
	1973	242.4	337.3	165.6	237.9	336.0	158.7	276.9	343.6	222.5
	1974	230.3	321.3	157.1	226.4	320.3	150.8	259.7	325.1	206.8
	1975	217.8	305.7	147.4	214.5	305.1	141.9	241.8	305.9	190.1
	1976	213.6	300.2	144.4	210.4	299.6	139.2	237.0	301.6	185.1
	1977	206.9	291.3	139.9	203.3	290.2	134.4	233.0	296.3	182.4
	1978	203.8	286.2	138.5	200.2	284.7	133.3	229.4	294.6	178.1
	1979	199.5	278.9	136.8	195.6	276.8	131.3	227.4	291.8	177.3
	1980	202.0	280.4	140.3	197.6	277.5	134.6	234.2	299.6	183.5
	1981	195.0	271.2	135.1	191.1	268.8	129.8	222.6	286.1	173.5
	1982	190.5	264.4	132.5	186.8	262.1	127.4	215.8	278.7	167.9
	1983	188.8	260.4	132.3	184.6	257.8	126.7	217.8	277.4	171.8
	1984	183.6	252.2	129.3	179.5	249.5	124.0	211.2	268.8	166.8
	1985[3]	181.7	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

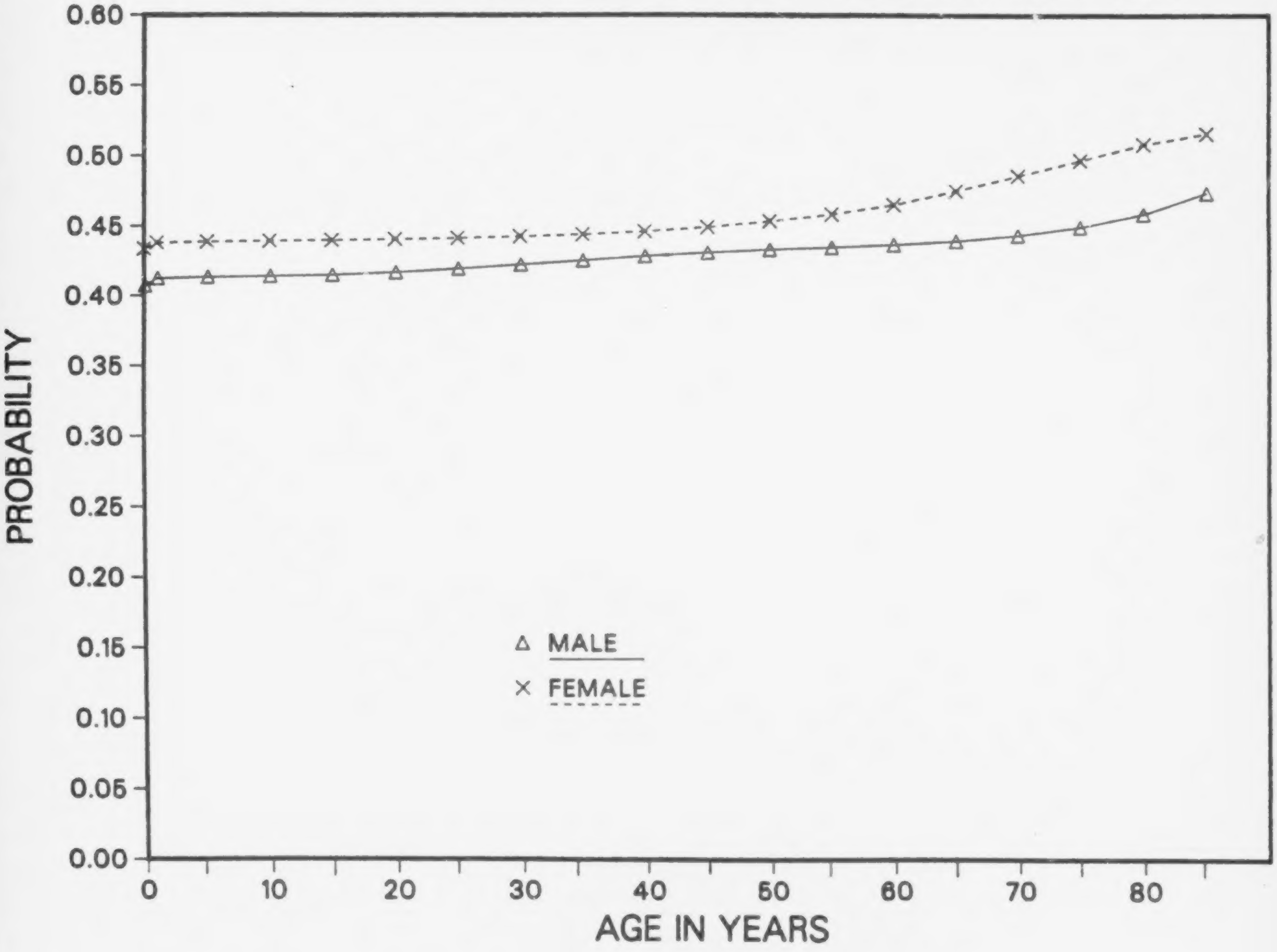
Table 2.12
Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
136	Acute Myocardial Infarction	11,225	36.7
139	Old Myocardial Infarction and Other Forms of Chronic Ischemic Heart Disease	10,630	34.7
148	All Other and Ill-Defined Forms of Heart Disease	5,520	18.0
146	Heart Failure	1,285	4.2
133	Hypertensive Heart Disease	686	2.2
140	Diseases of Pulmonary Circulation	377	1.2
144	Aortic Valve Disorders	202	0.7
131	All Other Chronic Rheumatic Heart Disease	111	0.4
128	Diseases of Mitral Valve	101	0.3
135	Hypertensive Heart and Renal Disease	91	0.3
145	All Other Diseases of Endocardium	65	0.2
147	Myocarditis, Unspecified and Myocardial Degeneration	61	0.2
143	Mitral Valve Disorders	53	0.2
137	Other Acute and Subacute Forms of Ischemic Heart Disease	48	0.2
130	Diseases of Mitral and Aortic Valves	44	0.1
141	Acute and Subacute Endocarditis	43	0.1
138	Angina Pectoris	32	0.1
142	Acute Pericarditis, Acute Myocarditis, and Other Diseases of Pericardium	31	0.1
129	Diseases of Aortic Valve	11	0.0
127	Acute Rheumatic Fever	2	0.0
	Total	30,618	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.10

PROBABILITY OF EVENTUALLY DYING FROM HEART DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

at all ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive are expected to live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher mortality rate for males from heart disease.

CANCER

Of 78,635 Michigan resident deaths in 1985, 17,281 were attributed to cancer. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages. The frequency of death due to cancer was 56.4 percent of the number of deaths due to heart disease across all ages, but the number of cancer deaths below age 65 was greater than the number of deaths due to heart disease below age 65. The median age at death for cancer was 69 years, well below the median age of 76 years for heart disease deaths (Table 2.13).

Of the 17,281 cancer deaths in 1985 occurring to Michigan residents, 53.5 percent were to males. The median age at death was 69 years for white males and females. The median ages at death for other than white persons who died of cancer were 67 years for males and 65 years for females.

Cancer death rates by age, race and sex are presented in Table 2.14. The cancer death rate across all ages in 1985 was higher for males (209.2) than for females (172.1). The cancer death rates displayed in Figure 2.11 show a strong increase in mortality with advancing age. Mortality rates for males were higher than those for females below age 25. In the age groups 25-34 and 35-44 years the rates for females were 15 to 20 percent higher than those for males. After age 44 the rates for males were greater than those for females. Between ages 45 and 84 the relative differential increased steadily, from 0.9 percent in the 45-54 year age group to 104 percent in the age group 75-84 years. The age-adjusted cancer death rate for males was 48 percent above that for females.

Cancer death rates for white and other than white males recorded in Table 2.14 are graphically displayed in Figure 2.12. Rates for other than white males exceeded those for white males at all ages with sufficient data to calculate rates. The largest relative differential occurred in the age group 55-64 years, where the rate for other than white males exceeded by 52.8 percent the rate for white males. Although the crude death rate for other than white males was below the comparable rate for white males, the age-adjusted rate for other than white males was 34 percent higher than the age-adjusted rate for white males.

Age specific cancer death rates were similar for white and other than white females below age 25 (Figure 2.13). The rates for other than white females were 53.2 percent higher than the rates for white females at age 35-44. The rates for other than white females remained higher by 5 to 24 percent above age 44. The crude rate for white females was 31.1 percent higher than the crude rate for other than white females. The age-adjusted rate for other than white females, however, was 16.9 percent greater than that for white females.

Among the major cause of death categories, cancer death rates have increased most persistently during the 20th century (Figure 2.14). The rate increased for the eleventh consecutive year in 1985 to 190.1, the highest observed in this century. The 1985 rate surpassed by 2.0 percent the previous high rate of 186.3 in 1984. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1947 Michigan's rate was generally close to the national rate. Since 1948, the state rate has been consistently below the national cancer death rate. The national provisional cancer death rate in 1985 was 191.7. This is 0.8 percent above the state rate.

Table 2.13
Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	6	4	2	5	3	2	1	1	-	-	-	-
1-4	29	17	12	26	17	9	3	-	3	-	-	-
5-9	35	16	19	29	14	15	5	2	3	1	-	1
10-14	30	16	14	28	15	13	2	1	1	-	-	-
15-19	42	26	16	35	20	15	7	6	1	-	-	-
20-24	49	26	23	43	24	19	6	2	4	-	-	-
25-29	76	39	37	59	28	31	17	11	6	-	-	-
30-34	132	52	80	109	45	64	23	7	16	-	-	-
35-39	222	100	122	189	88	101	33	12	21	-	-	-
40-44	326	147	179	266	127	139	60	20	40	-	-	-
45-49	567	257	310	469	212	257	98	45	53	-	-	-
50-54	873	445	428	740	378	362	133	67	66	-	-	-
55-59	1711	903	807	1440	748	691	271	155	116	-	-	-
60-64	2335	1296	1039	1986	1092	894	348	204	144	1	-	1
65-69	2574	1461	1113	2202	1234	968	372	227	145	-	-	-
70-74	2649	1554	1095	2325	1337	988	324	217	107	-	-	-
75-79	2286	1242	1044	2014	1083	931	272	159	113	-	-	-
80-84	1708	920	788	1540	824	716	167	96	71	1	-	1
85-89	1055	502	552	962	451	510	92	51	41	1	-	1
90+	575	226	349	521	207	314	54	19	35	-	-	-
Not Stated	1	-	1	-	-	-	1	-	1	-	-	-
All Ages	17281	9249	8030	14988	7947	7039	2289	1302	987	4	-	4
Median Age At Last Birthday	69	69	69	69	69	69	66	67	65	72	-	72

Table 2.14
Cancer Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	190.1	209.2	172.1	194.3	210.7	178.7	166.6	200.4	136.3
Under 1 Year	4.5	*	*	4.6	*	*	*	*	*
1-14 Years	5.3	5.4	5.2	5.9	6.3	5.5	2.7	*	3.8
15-24 Years	5.0	5.6	4.3	5.0	5.6	4.5	4.7	5.9	3.5
25-34 Years	12.6	11.2	14.0	12.1	10.5	13.7	15.7	15.5	15.8
35-44 Years	54.7	50.2	59.0	52.5	50.0	54.9	68.7	51.0	84.1
45-54 Years	166.8	167.6	166.1	160.9	160.0	161.8	206.4	223.2	192.8
55-64 Years	457.8	530.9	393.3	438.1	501.0	382.4	609.7	765.5	475.9
65-74 Years	908.4	1208.4	678.4	883.8	1157.0	674.5	1108.9	1627.6	710.1
75-84 Years	1414.7	2090.7	1024.0	1392.4	2060.8	1012.4	1625.6	2345.3	1140.7
85 Years and Over	1767.5	2621.6	1399.1	1738.0	2573.4	1380.1	2132.9	3186.2	1640.0
Age-Adjusted Rate[2]	141.5	175.2	118.0	137.3	168.9	115.7	174.5	226.9	135.3

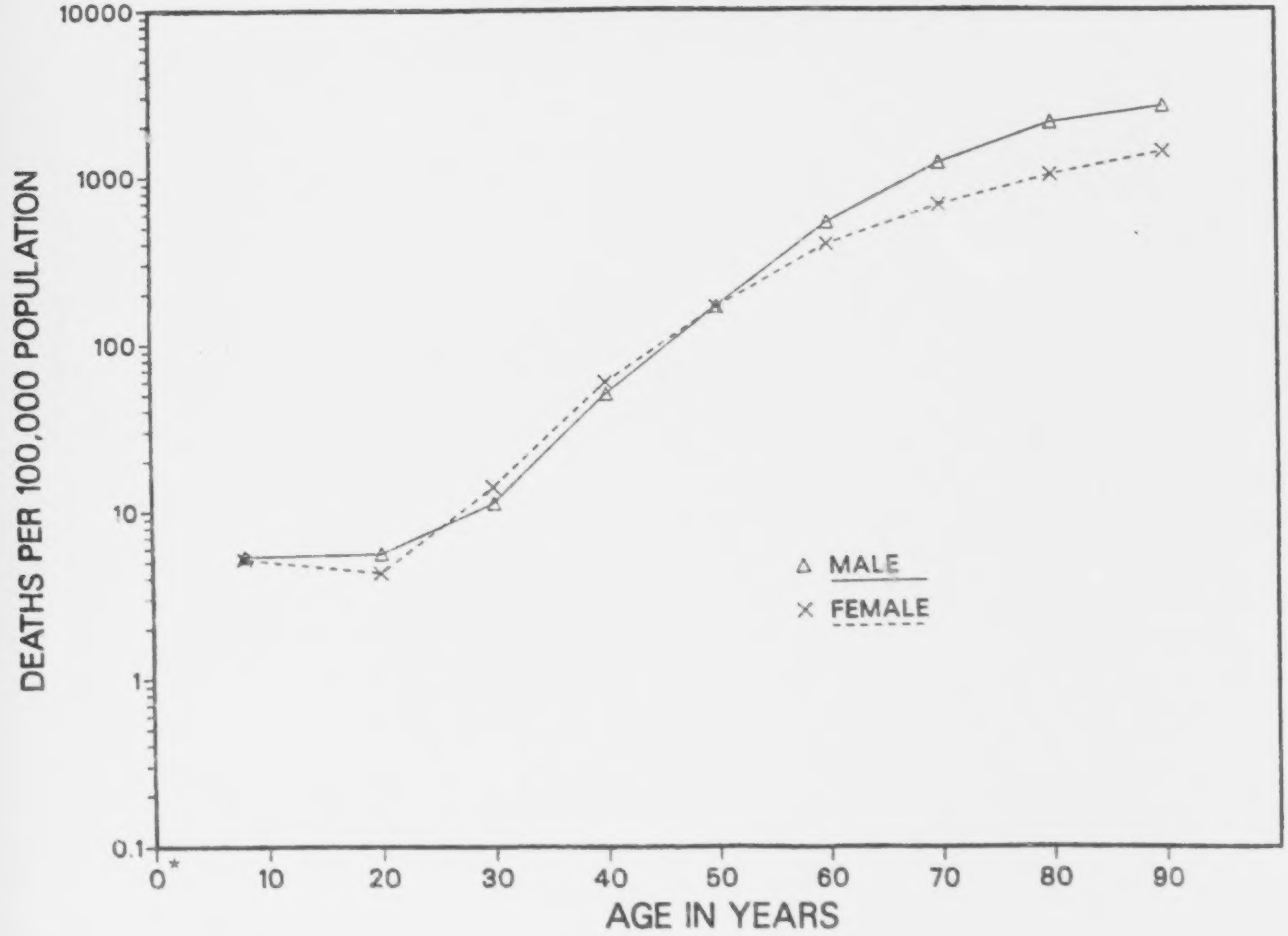
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

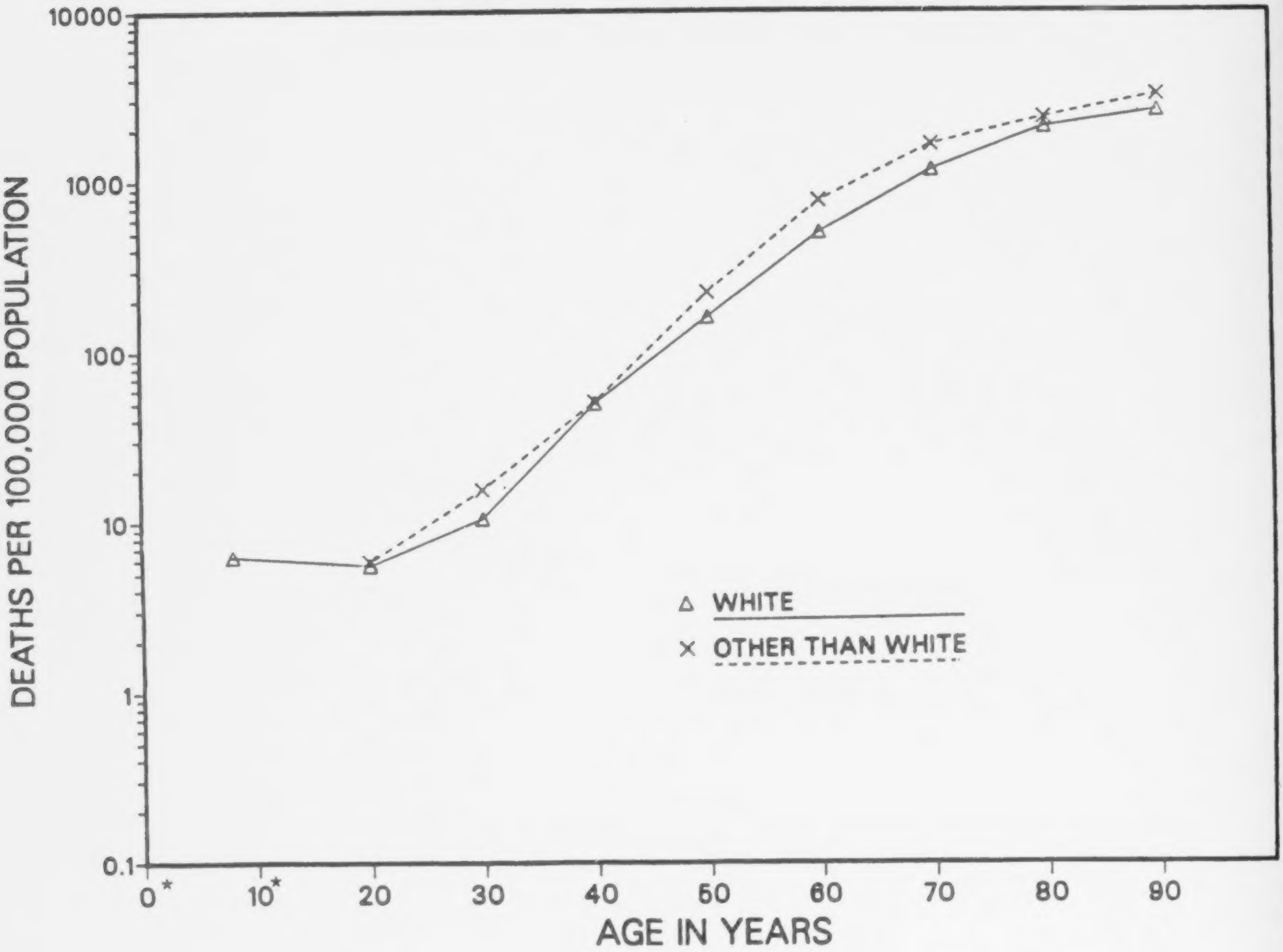
FIGURE 2.11
AGE-SPECIFIC CANCER DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.12
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1985

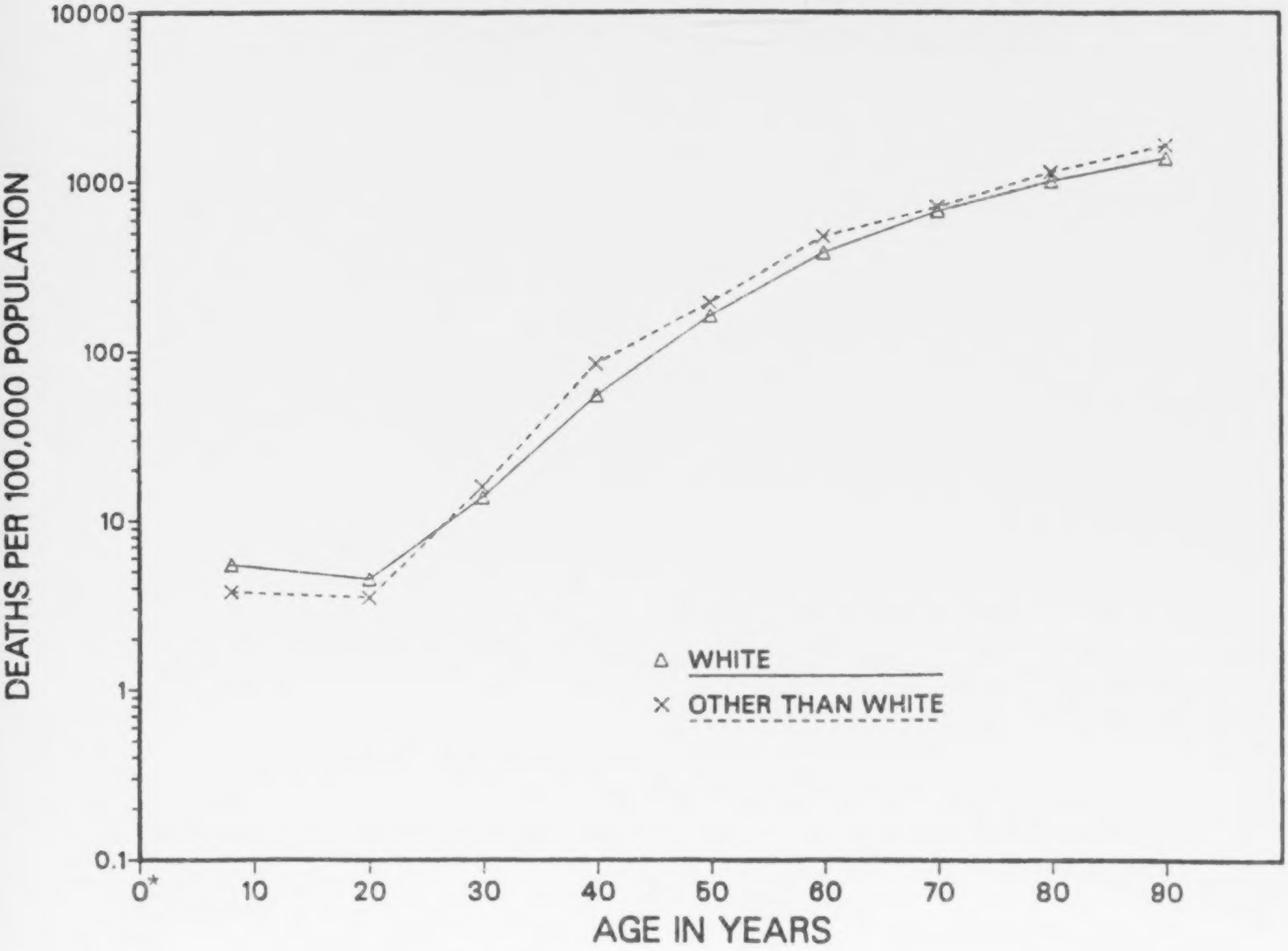


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.13

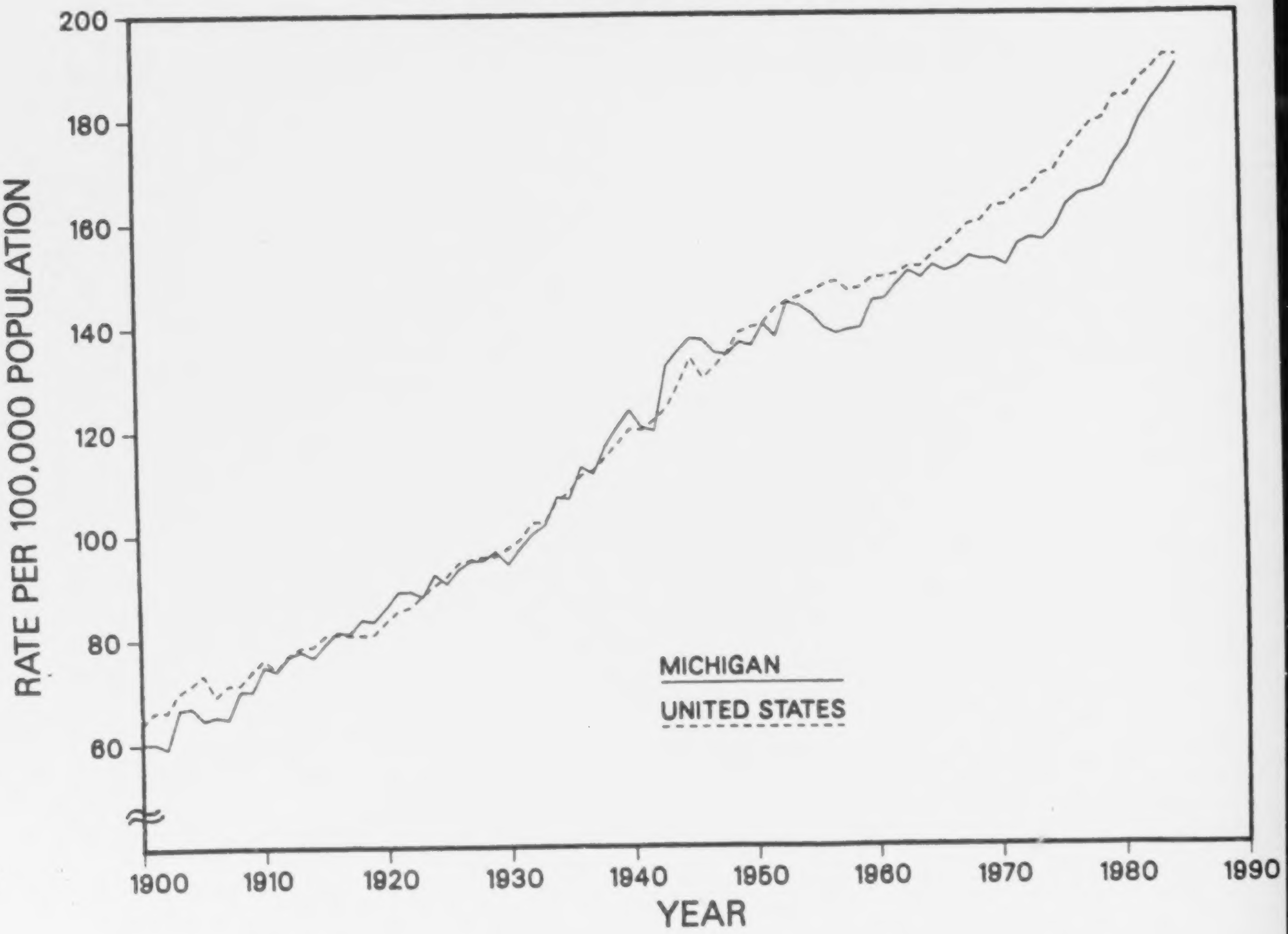
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.14
CANCER DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from Death Registration States for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Age-adjusted cancer death rates for the years since 1970 presented in Table 2.15 show a much closer relationship between Michigan and United States mortality patterns than that indicated by crude mortality rates. Michigan's 1970 age-adjusted rate for the total population was 3.7 percent higher than the comparable U.S. rate. From 1970 through 1980 Michigan's age-adjusted cancer death rate remained relatively stable. The rate rose 5.3 percent between 1980 and 1985 when the age-adjusted cancer death rate was 141.5. The United States rates remained stable from 1970 through 1979 and rose 1.3 percent between 1979 and 1985. The provisional rate for 1985 was 132.5 for the United States (see Technical Notes).

Table 2.15 contains a comparison of age-adjusted cancer death rates for white males, white females, other than white males and other than white females. The 1970 through 1985 rates for the other than white groups were consistently higher than those for their white counterparts. Rates for other than white males have increased nationally and in Michigan, while the rates for white males have increased more gradually in both Michigan and in the United States. Age-adjusted rates for white and other than white females were essentially stable in the nation while some increase was observed for white females and other than white females in Michigan.

The numbers of deaths from cancer for 50 different sites are presented in Table 2.16. Malignant neoplasms of the trachea, bronchus, and lung were the underlying cause of 4,572 deaths, 26.5 percent of all cancer deaths. Cancer of other and unspecified parts of the colon was the second leading cause of cancer mortality (1,649 deaths). The third most frequent category of cancer mortality was cancer of the female breast (1,514). The total number of deaths attributed to colon cancer was 1,823. Malignant neoplasms of the prostate and the pancreas caused 963 and 868 deaths, respectively. There were 23 other categories which had at least 100 deaths in 1985.

Based upon 1983 through 1985 death data, the probability of death due to cancer is 0.224 for males and 0.193 for females at birth (Figure 2.15). The probability of eventually dying from cancer is greater for males than for females at all ages. The probability for males rises slowly to a peak of 0.235 by age 50 then declines to 0.137 at age 85. Probabilities for females display little change from birth to age 45, then diminish to 0.086 by age 85. This decreasing probability beyond age 50, noting the high cancer mortality rates of older age (Figure 2.11), indicates that age-specific death rates due to competing causes of death increase relatively faster with advancing age.

Table 2.15
Age-Adjusted Cancer Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	134.7	164.7	110.1	131.9	160.2	109.1	159.4	206.6	117.1
	1971	131.6	159.0	109.7	128.6	154.8	107.9	158.3	197.3	123.7
	1972	133.8	163.2	111.0	130.6	159.3	108.6	161.2	196.6	130.9
	1973	133.8	163.1	110.7	130.7	158.7	108.9	159.9	202.3	123.9
	1974	131.9	160.6	109.6	129.0	156.1	108.2	155.9	198.7	119.8
	1975	131.7	161.6	108.9	128.1	155.4	107.7	162.1	215.2	117.7
	1976	134.1	165.5	110.2	130.7	159.6	109.0	163.0	215.8	119.1
	1977	134.5	168.8	108.5	130.5	162.5	106.5	168.6	222.1	125.1
	1978	133.7	166.7	109.2	130.2	160.7	107.8	162.1	217.1	118.1
	1979	131.8	165.2	107.0	128.2	160.0	105.0	160.6	208.6	122.2
	1980	134.4	167.8	109.7	130.7	161.8	107.9	163.9	216.6	122.2
	1981	135.3	164.4	114.4	130.8	157.3	112.2	171.1	223.3	130.7
	1982	137.9	170.7	114.5	134.3	164.9	113.0	166.6	218.0	127.1
	1983	138.7	173.3	114.3	134.6	166.8	112.3	170.0	224.9	128.1
	1984	139.9	174.0	116.0	135.4	166.4	114.2	173.4	233.8	128.2
	1985	141.5	175.2	118.0	137.3	168.9	115.7	174.5	226.9	135.3
U.S.	1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.6
	1971	129.3	157.6	108.0	126.9	154.5	106.2	150.7	186.0	121.7
	1972	130.1	159.2	108.2	127.6	155.7	106.8	151.1	190.7	119.1
	1973	129.7	159.2	107.8	126.9	155.3	105.9	154.7	195.1	122.6
	1974	130.7	161.2	108.1	127.9	157.1	106.5	154.7	198.2	120.2
	1975	129.4	160.1	106.8	126.7	155.8	105.6	152.7	198.8	116.2
	1976	130.6	161.7	107.8	127.9	157.3	106.7	153.5	201.0	116.2
	1977	131.0	162.6	108.0	128.0	158.0	106.5	156.0	204.0	118.7
	1978	131.6	163.7	108.3	128.7	159.0	107.0	155.5	204.6	117.7
	1979	130.8	163.4	107.1	127.8	158.7	105.7	155.1	204.2	117.8
	1980	132.8	165.5	109.2	129.6	160.5	107.7	158.2	209.0	120.2
	1981	131.6	163.7	108.6	128.5	158.3	107.2	156.7	209.4	117.5
	1982	132.5	164.8	109.5	129.4	159.4	108.2	157.0	210.1	117.9
	1983	132.6	164.3	109.9	129.4	158.9	108.5	156.8	208.4	118.6
	1984	133.5	164.6	111.1	130.2	159.0	109.9	157.8	209.7	119.4
	1985[3]	132.5	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1985

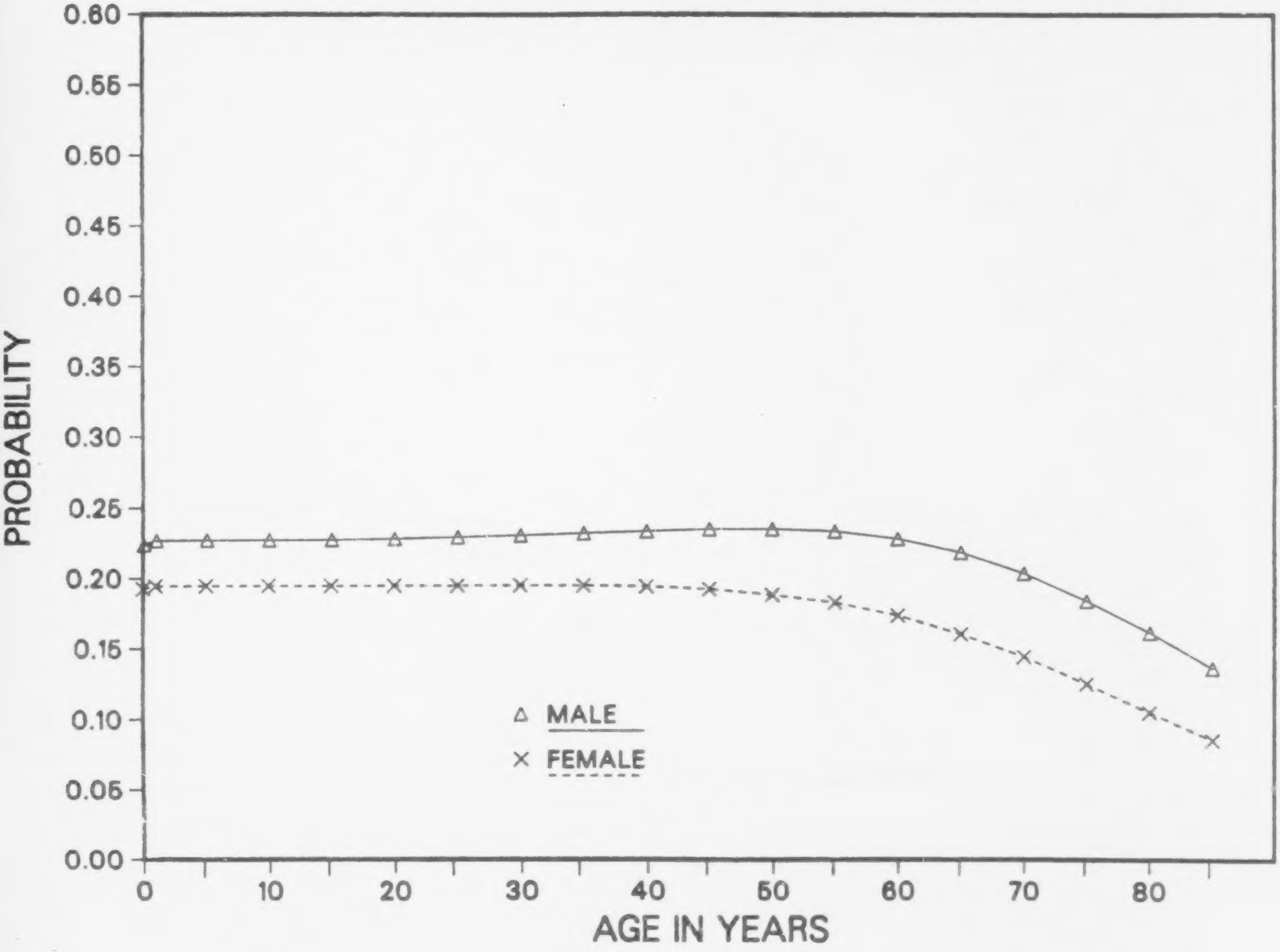
282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
57	Malignant Neoplasms of Trachea, Bronchus, and Lung	4,572	26.5
48	Malignant Neoplasms of Other and Unspecified Colon	1,649	9.5
63	Malignant Neoplasms of Female Breast	1,514	8.8
78	Malignant Neoplasms of All Other and Unspecified Sites	1,217	7.0
69	Malignant Neoplasms of Prostate	963	5.6
54	Malignant Neoplasms of Pancreas	868	5.0
42	Malignant Neoplasms of Stomach	509	2.9
75	Malignant Neoplasms of Brain	467	2.7
81	Other Malignant Neoplasms of Lymphoid and Histiocytic Tissue	425	2.5
67	Malignant Neoplasms of Ovary and Other Uterine Adnexa	424	2.5
72	Malignant Neoplasms of Bladder	392	2.3
41	Malignant Neoplasms of Esophagus	353	2.0
73	Malignant Neoplasms of Kidney and Other and Unspecified Urinary Organs	336	1.9
82	Multiple Myeloma and Immunoproliferative Neoplasms	298	1.7
84	Myeloid Leukemia	291	1.7
49	Malignant Neoplasms of Rectum, Rectosigmoid Junction, and Anus	279	1.6
66	Malignant Neoplasms of Other Parts of Uterus	245	1.4
83	Lymphoid Leukemia	203	1.2
86	Other and Unspecified Leukemia	192	1.1
53	Malignant Neoplasms of Gallbladder and Extrahepatic Bile Ducts	180	1.0
61	Melanoma of Skin	165	1.0
65	Malignant Neoplasms of Cervix Uteri	151	0.9
56	Malignant Neoplasms of Larynx	140	0.8
39	Malignant Neoplasms of Pharynx	134	0.8
79	Lymphosarcoma and Reticulosarcoma	122	0.7
55	Malignant Neoplasms of Retroperitoneum, Peritoneum, and Other and Ill-Defined Sites within the Digestive Organs and Peritoneum	120	0.7
52	Malignant Neoplasms of Liver not Specified as Primary or Secondary	116	0.7
60	Malignant Neoplasms of Connective and Other Soft Tissue	112	0.6
50	Malignant Neoplasms of Liver, Primary	97	0.6
47	Malignant Neoplasms of Cecum, Appendix, and Ascending Colon	89	0.5
40	Malignant Neoplasms of Other and Ill-Defined Sites within Lip, Oral Cavity, and Pharynx	88	0.5
80	Hodgkin's Disease	82	0.5
38	Malignant Neoplasms of Tongue	77	0.4
46	Malignant Neoplasms of Sigmoid Colon	63	0.4
77	Malignant Neoplasms of Thyroid Gland and Other Endocrine		

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1985 (continued)

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
	Glands and Related Structures	50	0.3
62	Other Malignant Neoplasms of Skin	49	0.3
58	Malignant Neoplasms of All Other and Ill-Defined Sites within the Respiratory System and Intrathoracic Organs	37	0.2
68	Malignant Neoplasms of Other and Unspecified Female Genital Organs	35	0.2
59	Malignant Neoplasms of Bone and Articular Cartilage	34	0.2
51	Malignant Neoplasms of Intrahepatic Bile Ducts	26	0.2
70	Malignant Neoplasms of Testis	19	0.1
43	Malignant Neoplasms of Small Intestine, including Duodenum	18	0.1
85	Monocytic Leukemia	15	0.1
74	Malignant Neoplasms of Eye	13	0.1
76	Malignant Neoplasms of Other and Unspecified Parts of Nervous System	13	0.1
44	Malignant Neoplasms of Hepatic and Splenic Flexures and Transverse Colon	11	0.1
45	Malignant Neoplasms of Descending Colon	11	0.1
64	Malignant Neoplasms of Male Breast	8	0.0
71	Malignant Neoplasms of Penis and Other Male Genital Organs	5	0.0
37	Malignant Neoplasms of Lip	4	0.0
	Total	17,281	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the _International Classification of Diseases_, WHO.

FIGURE 2.15
PROBABILITY OF EVENTUALLY DYING FROM CANCER BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 5,528 in 1985 or 7.0 percent of the 78,635 total Michigan resident deaths. This is 103 fewer stroke deaths than were observed in 1984. Of the total in 1985, 59.3 percent were to females.

The median age at death from stroke was 79 years (Table 2.17). The median age for females was 82 years, 6 years higher than that for males. Deaths for white persons due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age was 67 years for other than white males and 77 years for white males. The median was 74 years for other than white females. This was 8 years less than that for white females (82 years).

The cerebrovascular disease death rate was 60.8 in 1985. The rate for females (70.2) was much higher than the rate for males (50.9). The age-specific death rates recorded in Table 2.18 and displayed in Figure 2.16 indicate that rates for males and females were similar below age 55. The rates for both sexes increased markedly in the older age groups. Rates for males were above those of females from age 55 through 84. Among persons 85 years of age or older the rate for females was above that for males. The crude death rate for females exceeded that for males because of the larger proportion of women in the high risk older age groups. The age-adjusted rate of 38.8 for males was 21.3 percent higher than the age-adjusted rate of 32.0 for females.

Cerebrovascular disease death rates by age and race from Table 2.18 are graphically displayed in Figures 2.17 and 2.18. Rates for other than white males and females were higher than comparable rates for white persons in all age groups below age 75 with sufficient events to calculate rates. The relative differentials progressively decreased in the older age groups. Rates for white persons were considerably higher than those for other than white persons beyond age 84. Although the crude rates for white males and females were, respectively, 10.9 percent and 30.2 percent higher than rates for other than white persons, age-adjusted rates indicate an opposite relationship. The cerebrovascular disease age-adjusted death rate for other than white males was 45.8 percent higher than that for white males, while for other than white females the age-adjusted rate was 64.0 percent higher than that for white females.

The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.19). During the time period 1900–1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight years later. The national high and low rates for the years 1900–1948 were, respectively, 108.6 in 1904 and 84.1 in 1933. Rates for Michigan were below national rates from 1900 through 1907 but were generally, and sometimes markedly, higher from 1908 through 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has so remained since 1947.

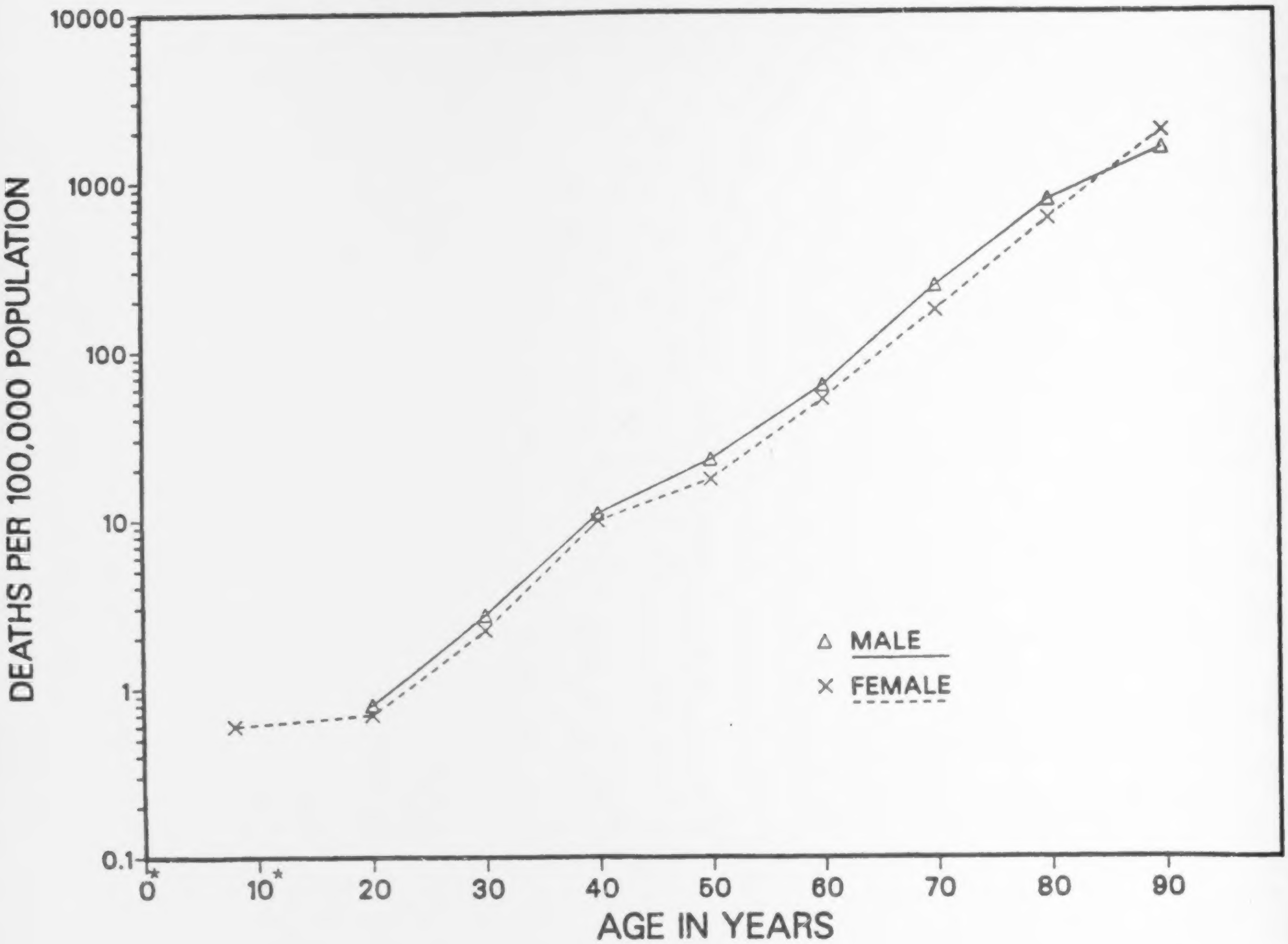
The 6th revision to ICD cause of death coding was adopted in the year 1949 nationally and in 1950 in Michigan. This revision resulted in a lack of direct comparability between cerebrovascular disease death rates prior to these dates and those after adoption. Since the significant change in coding procedures, the cerebrovascular disease death rate in Michigan has ranged from a high of 102.8 in 1953 to a low of 60.8 in 1985. Recent rates over the last twenty years have shown a clear downward tendency both nationally and in Michigan. The rate of 60.8 for Michigan in 1985 was 24 percent below the rate of 1975. In 1985 the Michigan rate was 5.0 percent below the United States provisional rate of 64.0.

Table 2.17
Deaths Due to Cerebrovascular Disease by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	3	2	1	2	1	1	1	1	-	-	-	-
1-4	2	-	2	2	-	2	-	-	-	-	-	-
5-9	3	2	1	3	2	1	-	-	-	-	-	-
10-14	3	1	2	2	1	1	1	-	1	-	-	-
15-19	3	2	1	1	1	-	2	1	1	-	-	-
20-24	10	5	5	6	3	3	4	2	2	-	-	-
25-29	14	9	5	11	8	3	3	1	2	-	-	-
30-34	26	13	13	16	9	7	10	4	6	-	-	-
35-39	43	22	21	22	12	10	21	10	11	-	-	-
40-44	60	31	29	37	15	22	23	16	7	-	-	-
45-49	66	33	33	38	17	21	28	16	12	-	-	-
50-54	104	61	43	70	44	26	34	17	17	-	-	-
55-59	183	96	87	142	71	71	41	25	16	-	-	-
60-64	309	158	151	231	117	114	77	41	36	1	-	1
65-69	465	240	225	387	204	183	77	36	41	1	-	1
70-74	685	356	329	582	311	271	103	45	58	-	-	-
75-79	834	398	436	744	367	377	90	31	59	-	-	-
80-84	1024	394	630	935	364	571	87	30	57	2	-	2
85-89	928	268	660	867	252	615	61	16	45	-	-	-
90+	763	161	602	719	150	569	44	11	33	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	5528	2252	3276	4817	1949	2868	707	303	404	4	-	4
Median Age At Last Birthday	79	76	82	80	77	82	72	67	74	74	-	74

FIGURE 2.16

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.18
Cerebrovascular Disease Death Rates by Age, Race, and Sex[1]
Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	60.8	50.9	70.2	62.5	51.7	72.8	51.5	46.6	55.9
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.4	*	0.6	0.5	*	*	*	*	*
15-24 Years	0.7	0.8	0.7	0.5	*	*	2.2	*	*
25-34 Years	2.4	2.7	2.2	1.9	2.4	1.4	5.1	4.3	5.8
35-44 Years	10.3	10.8	9.8	6.8	6.3	7.3	32.5	41.4	24.8
45-54 Years	19.7	22.4	17.1	14.4	16.5	12.3	55.4	65.8	47.0
55-64 Years	55.7	61.3	50.7	47.8	51.2	44.9	116.2	140.7	95.2
65-74 Years	200.0	238.9	170.2	189.2	231.8	156.6	288.4	296.9	281.8
75-84 Years	658.1	765.9	595.8	658.4	790.0	583.6	655.4	561.0	719.1
85 Years and Over	1832.5	1542.9	1957.4	1857.5	1569.8	1980.7	1523.5	1228.9	1661.3
Age-Adjusted Rate[2]	35.0	38.8	32.0	32.7	36.7	29.7	51.2	53.5	48.7

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

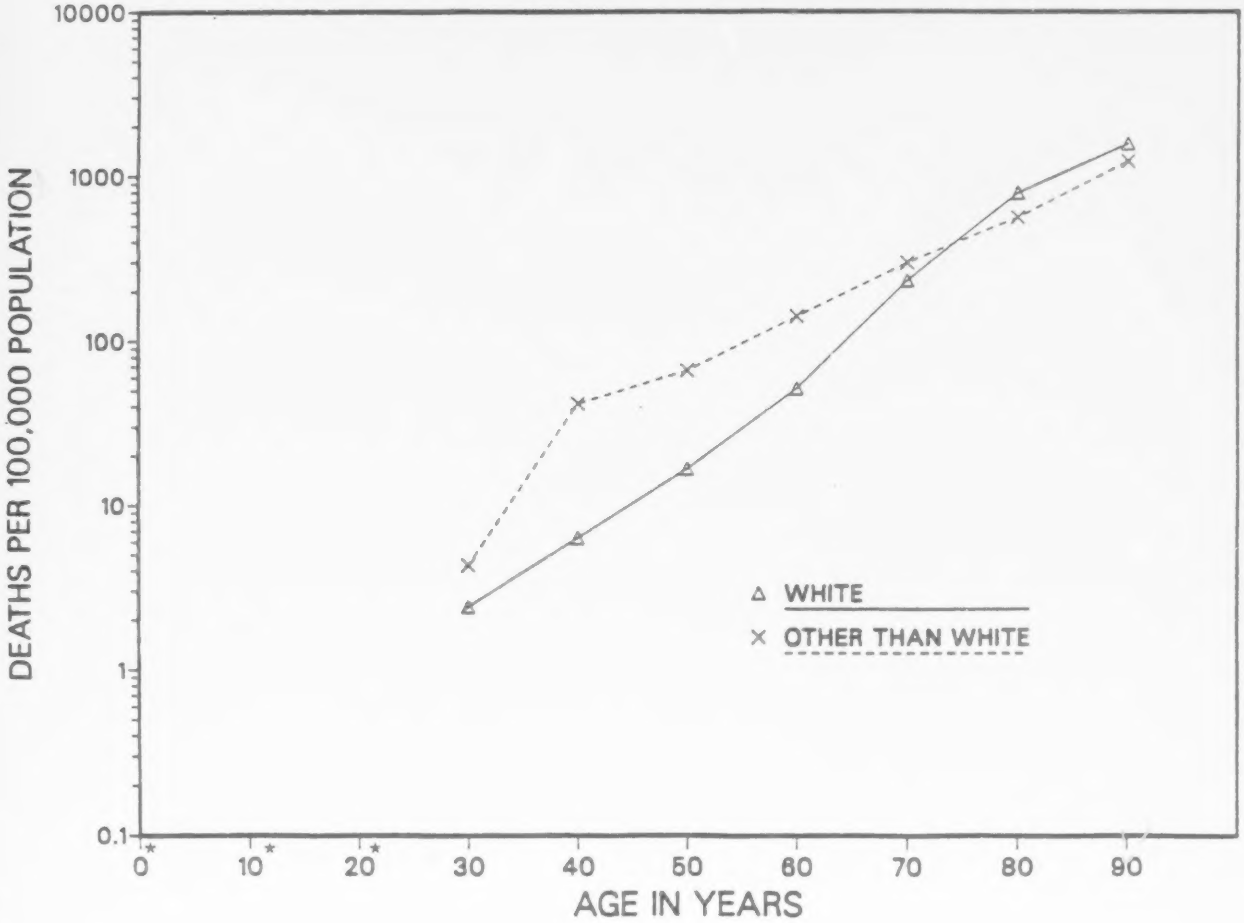
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.17

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1985



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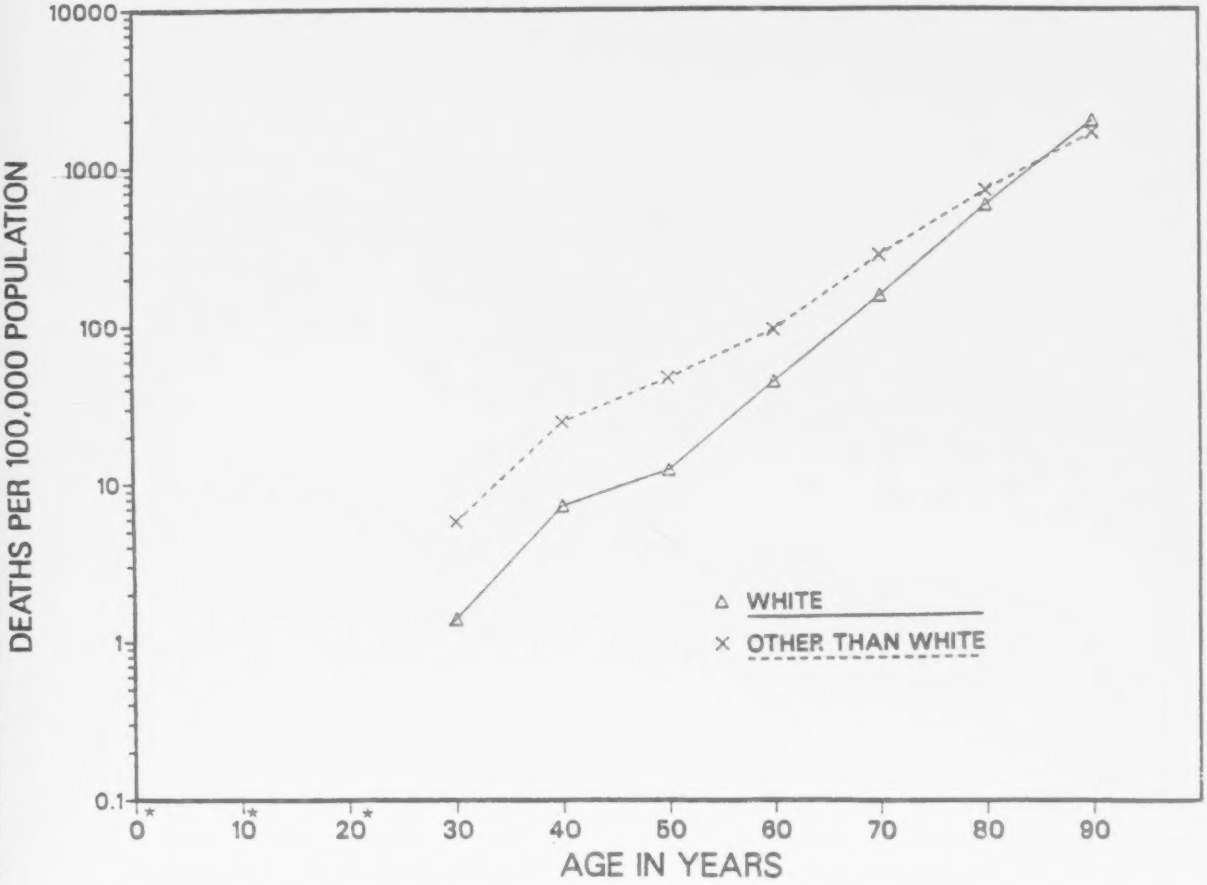
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

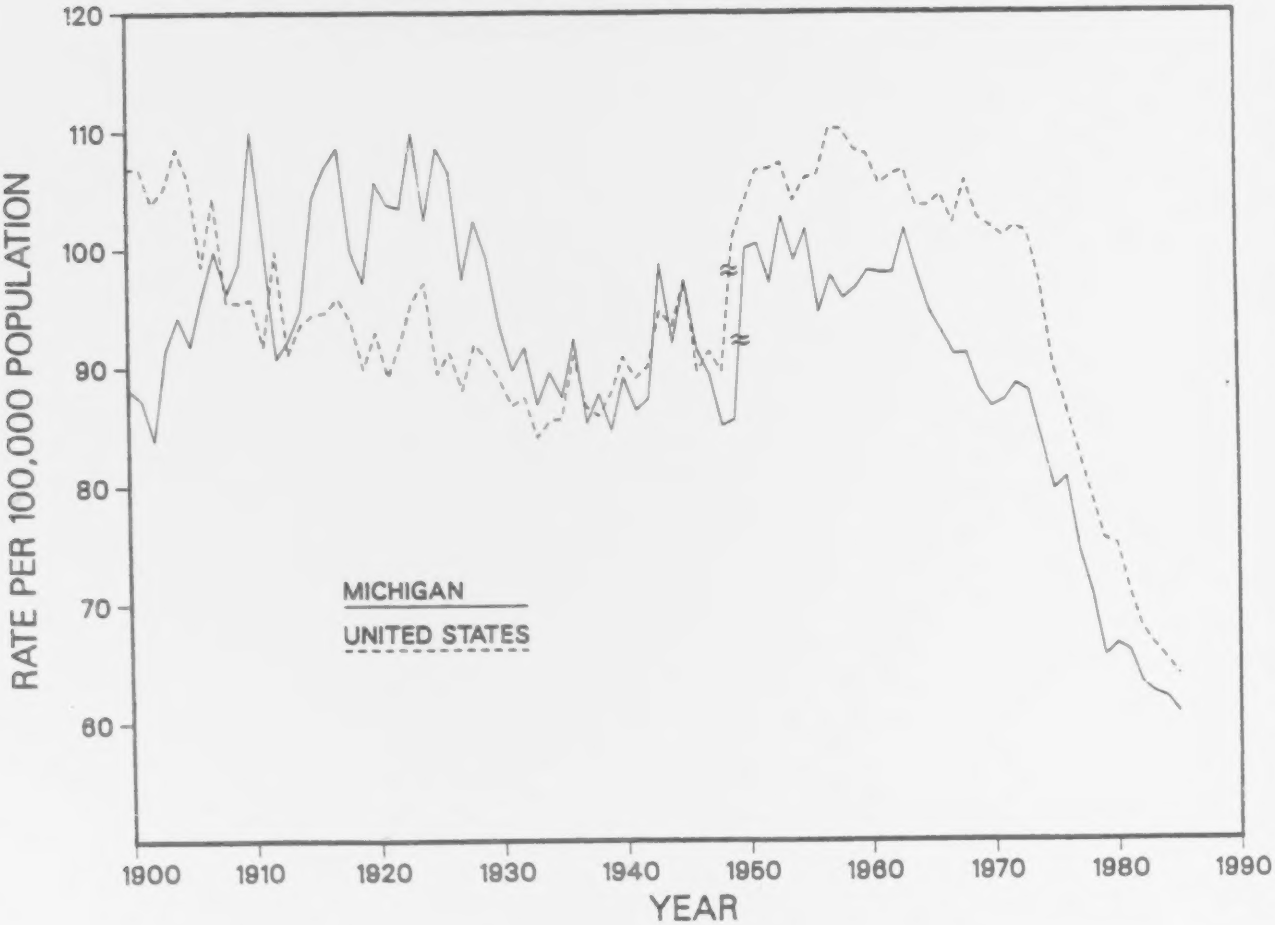
FIGURE 2.18
AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.19
CEREBROVASCULAR DISEASE DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates can be made but detailed study requires special consideration. See Technical Notes.

Age-adjusted rates for cerebrovascular disease deaths by race and sex are presented in Table 2.19. These rates have declined by approximately 47 percent since 1970 for white females and other than white females, by 46 percent for white males and by 44 percent for other than white males. Rates for other than white persons, however, remained substantially above rates for white persons throughout the period. Rates for the United States showed a similar pattern of decline. However, while Michigan and national rates were quite similar for white males and females, the state age-adjusted rates for other than white males and females were lower than comparable national rates almost each year until 1983 when national rates were lower. The state rates were again lower in 1984 (see Technical Notes).

Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,579 deaths). Second in frequency was cerebral thrombosis and unspecified occlusion of cerebral arteries which caused 1,148 deaths in 1985 (Table 2.20). These two cause of death categories comprised 67.5 percent of all stroke deaths. Intracerebral and other intracranial hemorrhage caused 733 deaths while other and late effects of cerebrovascular diseases caused 724 stroke deaths.

Based upon the mortality experience of 1983 through 1985, at birth a Michigan male faces a 0.062 chance of dying from cerebrovascular disease while the probability for a female at birth is 0.101. For both sexes the probability of eventual death due to this cause increases with advancing age. At all ages females are more likely to eventually die from this cause than are males (Figure 2.20). This results primarily from the higher risks from competing causes for males. At age 60, the probabilities for males start rising appreciably, reaching 0.090 by age 85. Data for females reveal a similar tendency, though the increase is more moderate. The peak probability for females is 0.129 at age 85.

Table 2.19
Age-Adjusted Cerebrovascular Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	64.7	70.8	59.9	61.5	67.9	56.5	93.9	95.4	92.2
	1971	63.7	72.5	56.7	61.0	70.4	53.5	86.9	89.1	84.9
	1972	63.3	69.5	58.2	60.6	66.6	55.6	84.8	91.8	78.2
	1973	61.4	67.4	56.4	58.9	65.0	53.9	80.8	86.2	76.4
	1974	57.8	64.7	52.2	55.5	62.4	50.0	74.6	81.6	68.2
	1975	53.9	60.1	49.0	52.1	57.9	47.6	67.3	77.2	59.0
	1976	53.1	58.0	49.3	51.2	56.2	47.3	67.2	71.9	63.3
	1977	48.4	54.0	44.0	46.4	51.9	42.2	64.2	71.9	58.2
	1978	45.2	49.3	42.0	42.9	47.3	39.6	62.7	63.8	61.1
	1979	40.9	46.3	36.8	38.6	44.0	34.6	58.6	64.3	53.8
	1980	40.6	44.9	37.4	38.1	42.4	35.0	59.4	64.1	55.6
	1981	40.0	43.2	37.7	37.5	40.8	35.2	58.2	61.2	55.4
	1982	37.4	42.2	33.7	35.3	40.0	31.8	52.9	59.1	47.8
	1983	36.8	40.1	34.2	34.3	37.6	31.8	54.9	57.9	52.0
	1984	35.7	39.5	32.9	34.1	37.8	31.4	46.2	52.0	41.9
	1985	35.0	38.8	32.0	32.7	36.7	29.7	51.2	53.5	48.7
U.S.	1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
	1971	65.0	72.7	59.1	60.9	68.7	54.9	102.0	109.4	95.8
	1972	64.6	72.3	58.6	60.6	68.4	54.5	100.6	107.6	94.8
	1973	63.1	69.9	57.9	59.0	65.8	53.9	98.6	106.4	92.3
	1974	59.2	65.9	54.1	55.7	62.4	50.8	89.7	98.0	83.0
	1975	53.7	60.0	49.0	50.6	56.7	46.1	80.8	88.9	74.2
	1976	50.6	56.1	46.5	47.6	53.0	43.6	76.2	84.1	69.9
	1977	47.3	52.7	43.3	44.4	49.7	40.6	71.7	79.3	65.6
	1978	44.4	49.1	40.8	41.6	46.0	38.4	67.6	76.1	60.9
	1979	41.6	45.9	38.3	38.9	42.9	35.9	63.6	71.8	57.1
	1980	40.8	44.9	37.6	38.0	41.9	35.2	62.9	70.5	57.0
	1981	38.1	41.7	35.4	35.6	38.9	33.1	58.6	65.6	53.2
	1982	35.8	39.2	33.2	33.4	36.6	31.0	54.8	61.8	49.6
	1983	34.4	37.7	31.8	32.0	35.2	29.6	52.6	57.8	48.6
	1984	33.4	36.4	31.1	31.1	33.9	28.9	51.1	56.3	46.9
	1985[3]	32.3	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

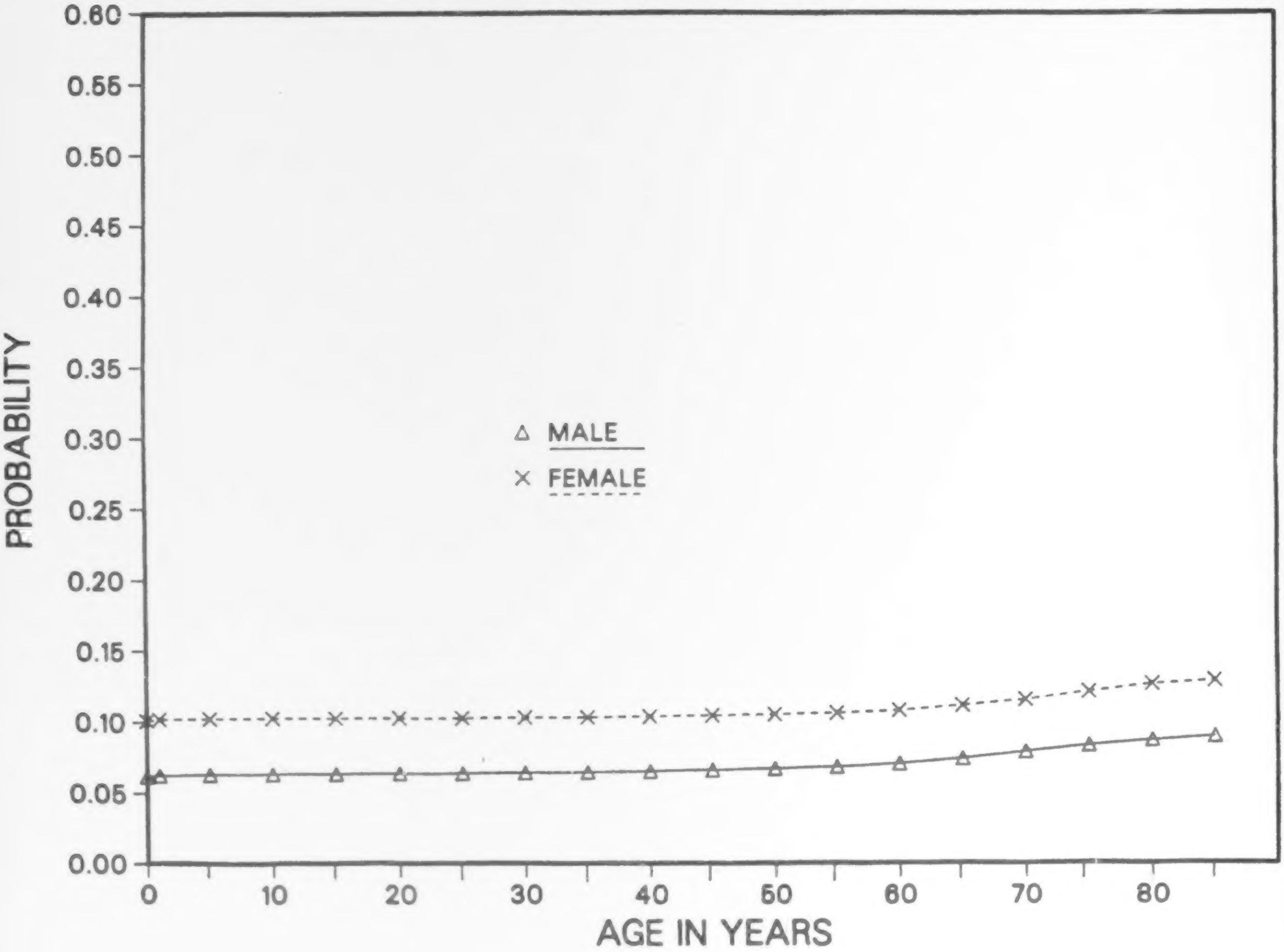
Table 2.20
Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
154	Acute but Ill-Defined Cerebrovascular Disease	2,579	46.7
152	Cerebral Thrombosis and Unspecified Occlusion of Cerebral Arteries	1,148	20.8
150	Intracerebral and Other Intracranial Hemorrhage	733	13.3
155	Other and Late Effects of Cerebrovascular Diseases	724	13.1
149	Subarachnoid Hemorrhage	262	4.7
151	Occlusion and Stenosis of Precerebral Arteries	59	1.1
153	Cerebral Embolism	23	0.4
	Total	5,528	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.20

PROBABILITY OF EVENTUALLY DYING FROM CEREBROVASCULAR DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ACCIDENTS

About 4.1 percent of all Michigan resident deaths in 1985 were attributed to accidents. The total of 3,228 accidental deaths is 179 more than in 1984. In 1985 68.1 percent of the total accidental deaths were to males.

The median age at death among accident victims was 37 years (Table 2.21). The median age among males was 34, 17 years lower than the 51 year median for females. This differential is predominantly traceable to the age at death distribution of white females. The median age of accidental death for white males was 34 years compared to 32 years for other than white males. For white females who died from accidents the median of 55 years was 25 years higher than that for their other than white counterparts.

Accidental deaths among white males were especially concentrated in the 15–29 year old year age ranges. These three age groups accounted for 33.5 percent of accidental deaths for white males compared to 28.0 percent for other than white males and less than 22 percent for all other race-sex categories.

The crude death rate from accidents for males was 2.2 times that for females. Age-specific accident death rates for males were greater than those for females in all age groups. The differentials between rates for males and females were greatest between ages 15 and 44. In the 25–34 year age group, the rate for males was 4.5 times that for females. The age-adjusted death rate for males was 2.6 times that for females. The differential between the rates for males and females tapered gradually beyond age 45 (Table 2.22).

Accident mortality rates by sex contained in Table 2.22 are displayed graphically in Figure 2.21. Although age-specific rates for males are generally much higher than those for females, the patterns of change are quite similar. Mortality rates for children between 1 and 14 years of age were the same or somewhat lower than those for infants under one year. The rates then rose sharply for both sexes in the 15–24 year age group. From this initial peak the rates for both groups declined somewhat, remained fairly constant through age 64, and then increased continuously beyond that age.

Age-specific accident death rates for white and other than white persons are graphically displayed in Figures 2.22 and 2.23. Rates for white males were higher than those for other than white males only in the 15–24 and 75 and above age groups. Both the crude and age-adjusted accident death rates for other than white males were somewhat higher than those for white males. The rates for other than white females were higher than those for white females in the 35–44 age group. At 65 years of age and above the rates for white females were higher. Otherwise the rate for both groups were similar (Table 2.22).

Michigan's accident death rate in 1900 was 71.9. The highest rate observed in this century was 103.1 in 1936. The rate of 32.2 in 1983 was the lowest rate of the century. In nine of the last twelve years the accident death rate has fallen or remained the same. The rate of 35.5 in 1985 was 10.2 percent higher than that of 1983 and was slightly less than the 1981 rate of 36.6.

The highest national accident death rate was 101.8 in 1907. The lowest national rate of the century was the provisional rate of 38.6 for 1985. Michigan's rates have been below national rates fairly consistently since 1900. The last time Michigan's rate was

Table 2.21
Deaths Due to Accidents by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	35	26	9	23	16	7	12	10	2	-	-	-
1-4	144	86	58	114	74	40	30	12	18	-	-	-
5-9	95	60	35	69	43	26	25	16	9	1	1	-
10-14	89	63	26	69	46	23	19	16	3	1	1	-
15-19	297	210	87	263	185	78	34	25	9	-	-	-
20-24	358	285	73	313	251	62	45	34	11	-	-	-
25-29	268	220	48	226	183	43	41	36	5	1	1	-
30-34	214	172	42	176	141	35	37	30	7	1	1	-
35-39	213	159	54	168	127	41	43	31	12	2	1	1
40-44	128	88	40	97	64	33	30	23	7	1	1	-
45-49	130	100	30	114	87	27	16	13	3	-	-	-
50-54	133	95	38	111	80	31	21	14	7	1	1	-
55-59	153	113	40	129	94	35	24	19	5	-	-	-
60-64	130	87	43	109	69	40	21	18	3	-	-	-
65-69	131	83	48	117	69	48	13	13	-	1	1	-
70-74	145	77	68	130	68	62	15	9	6	-	-	-
75-79	166	84	82	156	76	80	9	7	2	1	1	-
80-84	164	94	70	151	86	65	13	8	5	-	-	-
85-89	123	58	65	119	55	64	4	3	1	-	-	-
90+	110	37	73	106	36	70	4	1	3	-	-	-
Not Stated	2	2	-	-	-	-	1	1	-	1	1	-
All Ages	3228	2199	1029	2760	1850	910	457	339	118	11	10	1
Median Age At Last Birthday	37	34	51	38	34	55	32	32	30	36	36	37

Table 2.22
Accident Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	35.5	49.7	22.1	35.9	49.3	23.1	33.3	52.2	16.3
Under 1 Year	26.2	38.1	13.7	21.1	28.7	13.1	48.7	80.7	*
1-14 Years	18.4	22.9	13.7	18.0	22.7	13.0	20.0	23.6	16.3
15-24 Years	35.9	53.8	17.7	37.2	55.5	18.1	28.4	43.8	13.9
25-34 Years	29.3	48.2	10.8	29.0	46.8	11.2	30.6	56.9	8.6
35-44 Years	34.0	50.2	18.4	30.9	44.9	17.1	54.0	86.1	26.2
45-54 Years	30.5	46.5	15.3	30.1	45.6	15.2	33.1	53.8	16.2
55-64 Years	32.0	48.3	17.7	30.4	44.4	18.1	44.3	78.9	14.6
65-74 Years	48.0	64.1	35.6	48.4	62.1	37.9	44.6	80.6	16.9
75-84 Years	115.9	172.1	85.0	120.6	176.1	89.1	81.5	138.0	43.4
85 Years and Over	254.7	348.9	214.0	264.7	359.3	224.2	130.6	227.6	*
Age-Adjusted Rate[2]	31.9	46.9	18.0	31.5	45.7	18.0	34.5	55.5	16.5

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

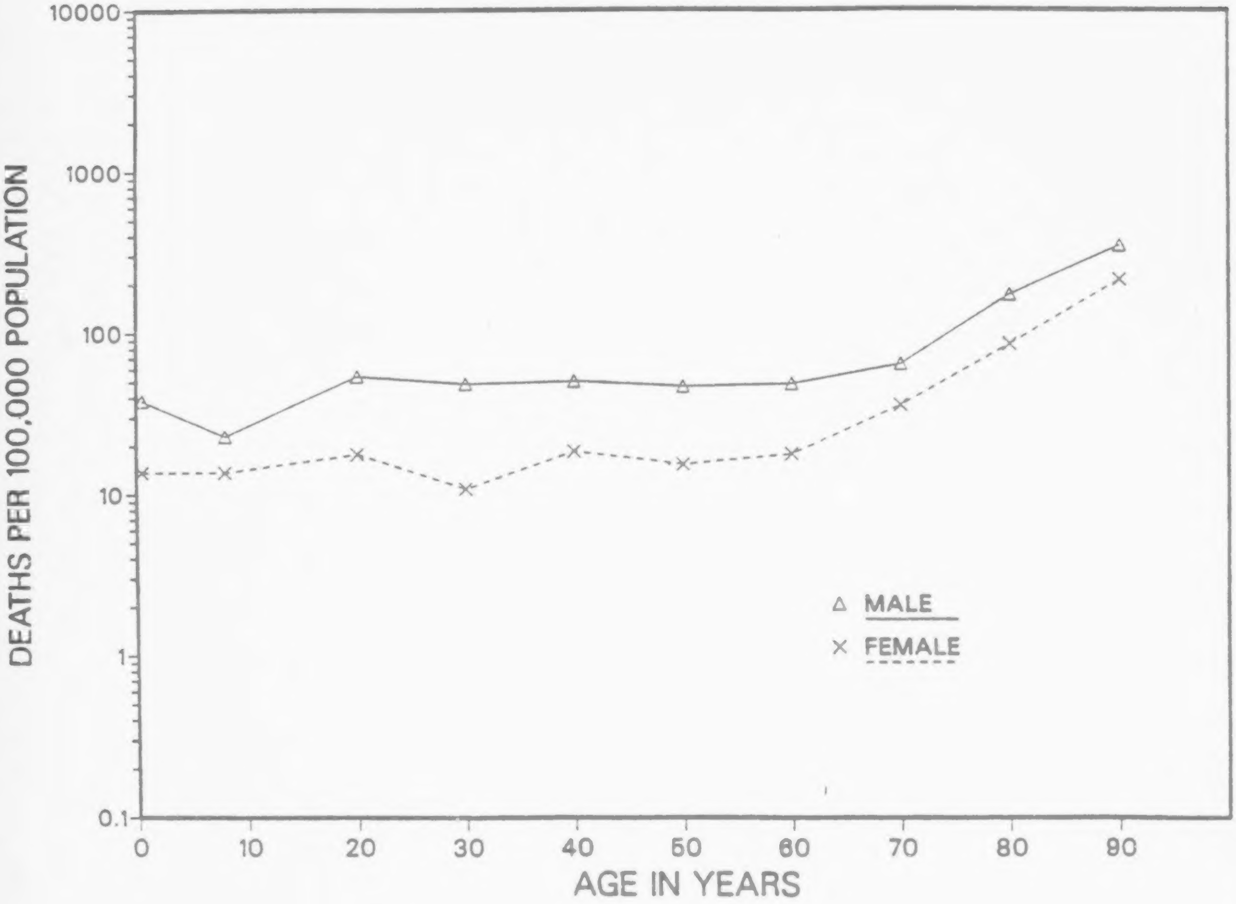
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.21

AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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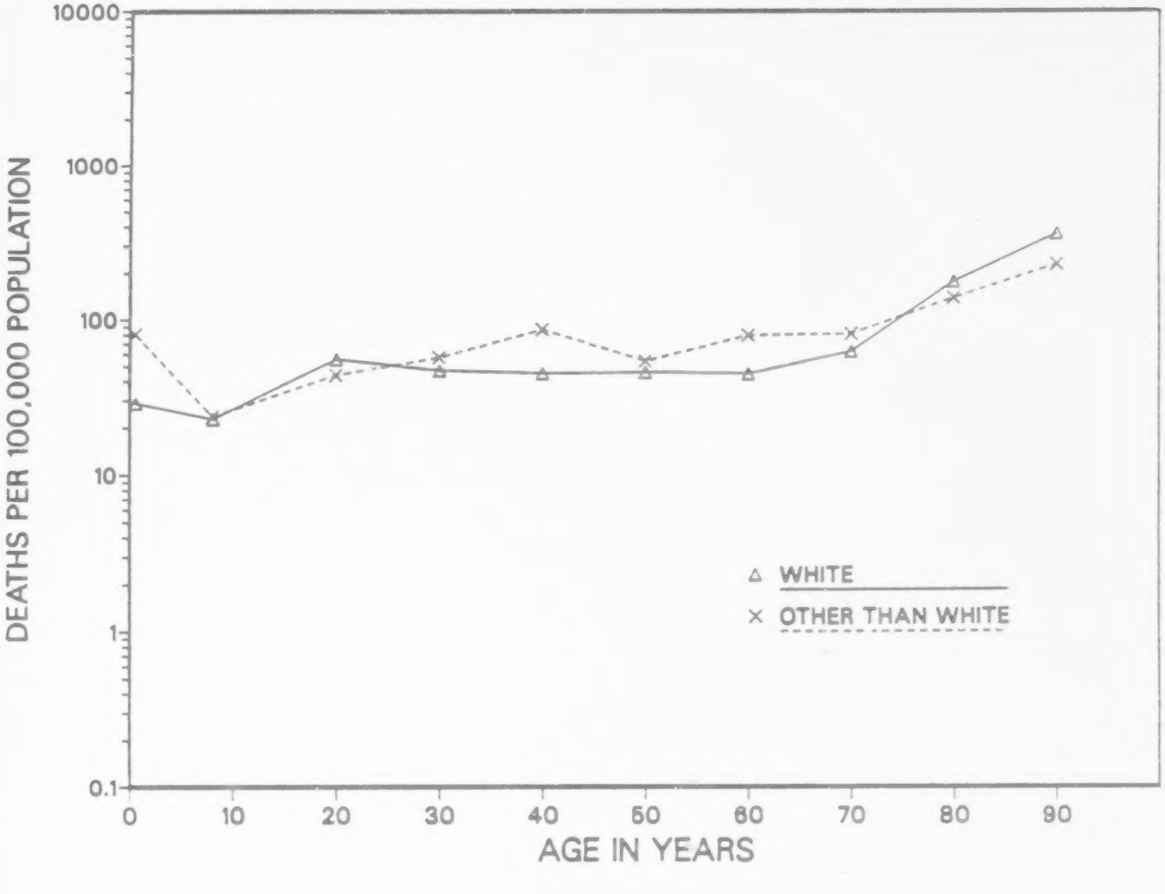
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.22

AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1985



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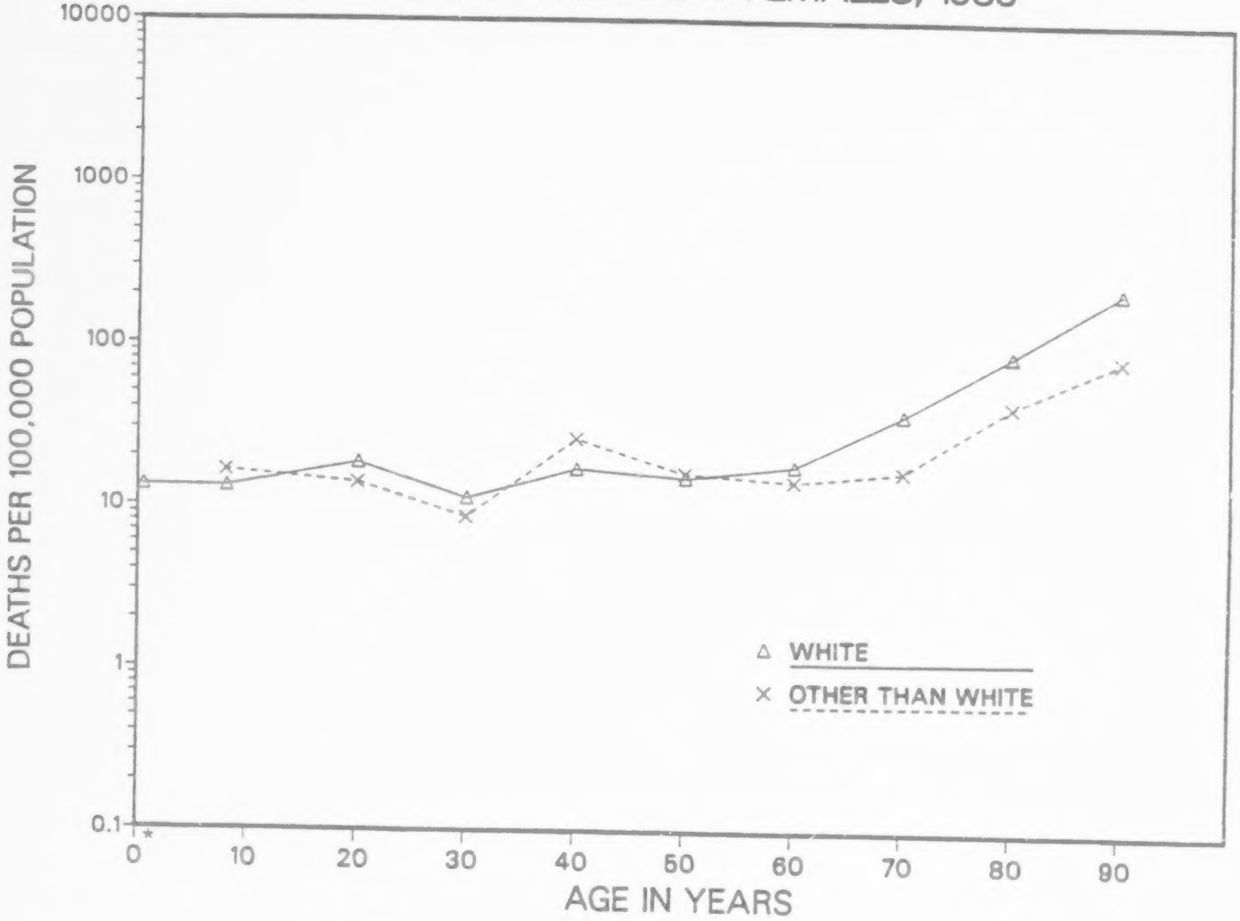
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent differences in rate rather than absolute differences.

FIGURE 2.23
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1985



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

above that of the United States was in 1964. The accident death rate for Michigan in 1985 was 8.0 percent below the provisional rate for the nation (Figure 2.24).

Michigan's age-adjusted death rates for accidental deaths have also been below the comparable national rates since 1970 (Table 2.23). Between 1970 and 1983 Michigan's age-adjusted rate declined by 40.9 percent. The Michigan rates then rose 11.1 percent between 1983 and 1985. Between 1970 and 1985 the national age-adjusted rate declined by 36.1 percent to the provisional rate of 34.3 (see Technical Notes). Michigan's rate was 7.0 percent below the national provisional rate in 1985. The age-adjusted rates by race and sex declined for each population subgroup during this period. Other than white female rates have been about the same as those for white females since 1970. For males, other than white male rates have fluctuated from 4 to 24 percent above the white male rates between 1970 and 1985. Nationally, the differential between other than white males and white males moved from 52 percent in 1970 to 18 percent in 1984.

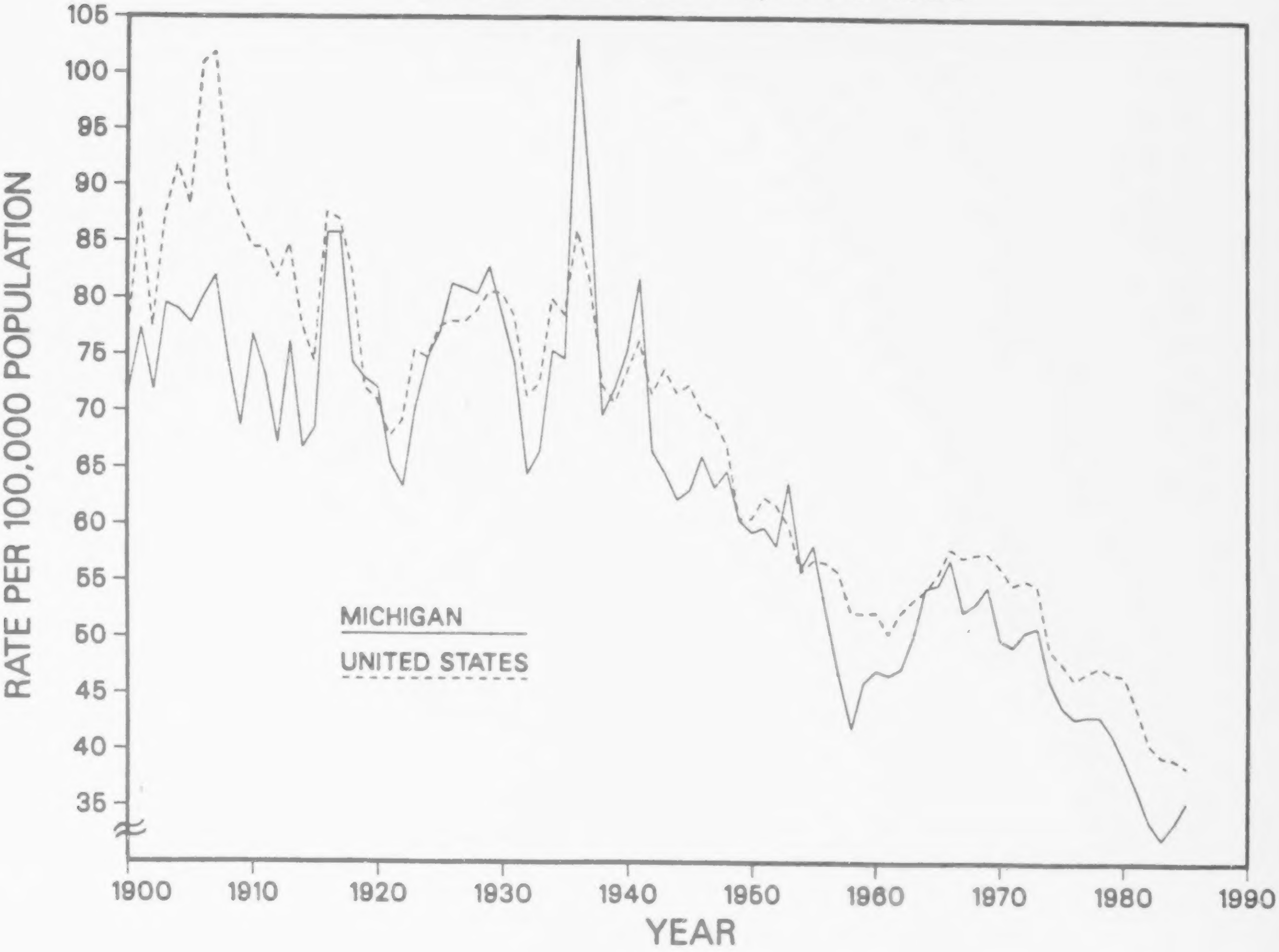
Motor vehicle accidents involving collision with another motor vehicle was the largest single cause of accidental death in 1985, resulting in 757 deaths (Table 2.24). Deaths from all types of motor vehicle accidents accounted for 1,676 deaths in 1985. Accidental falls of all types resulted in 427 deaths. Accidents caused by fires and flames, accidental drownings, and accidental poisonings caused 240, 134, and 135 deaths, respectively. Choking on food or other objects was the cause of 110 deaths, while accidents caused by handguns and other firearms resulted in the deaths of 35 Michigan residents. Medical misadventures, water transport accidents and air and space transport accidents each accounted for 62, 50 and 42 deaths in 1985, respectively (Table 2.24).

Deaths from motor vehicle accidents accounted for 51.9 percent of all accidental deaths in 1985. This proportion of accident deaths varied by age group, from a low of 28.8 percent of accident deaths for persons 65 years of age or older to 76.2 percent for persons 15–24 years of age (Table 2.25). Among children under 15 years the most frequent causes of accidental death were motor vehicle accidents, fire and drownings, resulting in 166, 71, and 44 deaths respectively in 1985. Motor vehicle accidents were the leading causes of accidental death among persons 15 through 64 years of age. The next most frequent causes are accidental drownings for persons 15–24 years of age, accidental poisonings for persons 25–44 years of age and accidental fails for persons 45–64 years of age. Accidental falls, which caused 13.2 percent of all accidental deaths, were the leading cause of the accidental deaths (34.6 percent) among persons 65 years of age or older.

Table 2.26 displays the distribution of motor vehicle accident deaths by the age of the deceased person and the type of involvement of the deceased in the accident. Of the 1,676 persons killed in motor vehicle accidents in 1985, 678 (40.5 percent) were driving motor vehicles other than motorcycles at the time of the fatal accident. There were 354 deaths of passengers in motor vehicles other than motorcycles, while 279 pedestrians were killed in motor vehicle accidents. Motorcycle accidents resulted in the deaths of 144 motorcyclists and 10 motorcycle passengers. It should be noted that for 166 deaths (9.9 percent of the total) the type of involvement of the deceased in the accident was not stated.

The type of involvement of the deceased in the accident varied by age. The majority of children under age 15 killed in motor vehicle accidents were either pedestrians (38.0 percent) or passengers (36.1 percent). Nearly two thirds of the persons 15–24 years of age who died in motor vehicle accidents in 1985 were either drivers (40.9 percent) or passengers (22.6 percent) of motor vehicles other than motorcycles. Among persons 25–44 years and 45–64 years of age 47.9 percent and 50.4 percent respectively were driving motor vehicles other than motorcycles at the time of the accident. Pedestrians accounted

FIGURE 2.24
ACCIDENT DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.23
Age-Adjusted Accident Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	48.6	71.3	27.4	47.5	69.6	26.8	56.1	83.9	30.7
	1971	47.7	69.9	26.8	46.7	68.1	26.5	55.0	84.7	28.2
	1972	48.7	72.9	25.9	48.3	72.1	25.8	51.6	80.1	25.7
	1973	48.9	72.4	26.6	48.0	71.0	26.1	54.4	82.7	28.8
	1974	43.8	65.5	23.2	43.3	64.2	23.3	47.3	75.5	22.0
	1975	41.5	61.7	22.4	41.2	61.1	22.2	44.1	67.2	23.8
	1976	40.0	58.7	22.4	40.0	59.5	22.6	39.6	61.0	20.8
	1977	40.4	59.1	22.8	40.3	58.7	22.7	41.2	62.7	22.2
	1978	40.3	59.5	22.2	40.2	59.4	21.9	42.0	63.0	24.0
	1979	38.4	56.2	21.8	38.4	55.7	21.9	39.6	61.7	20.5
	1980	36.4	53.3	20.6	36.3	52.2	21.2	37.9	62.4	16.9
	1981	33.6	50.5	17.7	33.7	50.4	17.8	33.8	52.7	17.6
	1982	30.7	45.2	17.2	30.3	44.4	16.9	33.0	50.1	18.1
	1983	28.7	43.2	15.1	28.5	43.0	14.7	30.1	45.5	17.0
	1984	29.8	44.0	16.5	29.4	43.1	16.5	31.9	50.1	16.4
	1985	31.9	46.9	18.0	31.5	45.7	18.0	34.5	55.5	16.5
U.S.	1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
	1971	51.7	77.0	27.9	49.2	72.9	26.8	70.1	109.8	35.3
	1972	51.7	77.1	27.9	49.5	73.1	27.0	68.4	108.6	33.2
	1973	51.3	76.8	27.2	49.2	73.1	26.2	66.9	105.9	32.9
	1974	45.5	68.8	23.5	43.9	66.0	22.7	57.8	91.3	28.6
	1975	44.2	67.0	22.8	42.6	64.1	22.1	56.1	89.5	27.1
	1976	42.5	63.9	22.4	41.3	61.5	21.9	52.3	83.4	25.3
	1977	43.1	64.5	22.8	41.9	62.2	22.4	52.1	83.1	25.2
	1978	43.5	65.4	22.9	42.5	63.4	22.4	51.5	81.7	25.6
	1979	42.9	64.9	21.9	42.0	63.3	21.6	49.3	78.9	23.9
	1980	42.3	64.0	21.8	41.5	62.3	21.4	49.5	78.4	24.8
	1981	39.8	60.2	20.4	39.3	59.1	20.2	44.0	70.4	21.4
	1982	36.6	55.2	18.9	36.1	54.1	18.7	40.8	64.5	20.5
	1983	35.3	52.9	18.7	34.7	51.8	18.3	40.2	62.5	21.0
	1984	35.0	52.3	18.7	34.6	51.3	18.5	38.5	60.5	19.5
	1985[3]	34.3	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes)

[3] Provisional

Table 2.24
Deaths Due to Accidents by Type of Accident, Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
236	Motor Vehicle Accidents Involving Collision with Another Motor Vehicle	757	23.5
239	Motor Vehicle Accidents Not Involving Collision on Highway	305	9.4
252	Fracture, Cause Unspecified, and Other and Unspecified Falls	293	9.1
237	Motor Vehicle Accidents Involving Collision with Pedestrian	263	8.1
262	All Other Accidents, and Late Effects of Accidental Injury	256	7.9
253	Accidents Caused by Fires and Flames	240	7.4
238	Motor Vehicle Accidents Involving Collision with Other Vehicle or Object	200	6.2
255	Accidental Drowning and Submersion	134	4.2
250	Fall From One Level to Another	122	3.8
256	Inhalation and Ingestion of Food or Other Object Causing Obstruction of Respiratory Tract or Suffocation	110	3.4
240	Motor Vehicle Traffic Accidents of Unspecified Nature	79	2.4
246	Accidental Poisoning by Drugs, Medicaments, and Biologicals	71	2.2
249	Misadventures During Medical Care, Abnormal Reactions, and Late Complications	62	1.9
248	Accidental Poisoning by Gases and Vapors	52	1.6
243	Water Transport Accidents	50	1.5
244	Air and Space Transport Accidents	42	1.3
235	Motor Vehicle Accidents Involving Collision with Train	39	1.2
258	Accidents Caused by All Other and Unspecified Firearms	34	1.1
241	Motor Vehicle Nontraffic Accidents	33	1.0
261	Accidents Caused by Electric Current	20	0.6
251	Fall on Same Level	12	0.4
247	Accidental Poisoning by Other Solid or Liquid Substances	12	0.4
234	Railway Accidents	9	0.3
242	Other Road Vehicle Accidents	8	0.2
260	Accidents Caused by Hot Substance or Object, Caustic or Corrosive Material, Steam, and Exposure to Radiation	8	0.2
259	Accidents Caused by Explosive Material	7	0.2
263	Drugs, Medicaments, and Biological Substances Causing Adverse Effects in Therapeutic Use	4	0.1
254	Lightning	4	0.1
257	Accidents Caused by Handguns	1	0.0
245	Vehicle Accidents no Elsewhere Classifiable	1	0.0
	Total	3,228	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

Table 2.25
Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1985

TYPE OF ACCIDENT	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	3,228	363	655	823	546	839
Motor Vehicle Accidents	1,676	166	499	518	250	242
Accidental Falls	427	8	10	41	78	290
Accidents Caused by Fire and Flames	240	71	25	44	49	51
Accidental Drownings	134	44	29	35	12	14
Accidental Poisonings	135	6	25	53	29	22
Choking on Food or Other Object	110	11	3	11	20	65
Accidents Caused by Handguns and Other Firearms	35	8	12	10	4	1
Air and Space Transport Accidents	42	4	8	18	10	2
Misadventures During Medical Care, Abnormal Reactions, and Late Complications	62	3		6	10	43
Water Transport Accidents	50	4	13	18	10	5
All Other Accidents	317	38	31	69	74	104

Table 2.26
Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1985

PERSON INJURED	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	1,676	166	499	518	250	242
Driver of Motor Vehicle Other Than Motorcycle	678	6	204	248	126	94
Passenger in Motor Vehicle Other Than Motorcycle	354	60	113	76	43	62
Motorcyclist	144	3	65	66	10	-
Passenger on Motorcycle	10	-	9	1	-	-
Pedal Cyclist	44	23	9	8	2	2
Pedestrian	279	63	50	71	45	50
Other Unspecified Person	1	-	-	-	1	-
Unspecified Person . . .	166	11	49	48	23	34

for 20.7 percent of all motor vehicle accident deaths among persons 65 years of age or older, compared to 16.6 percent for persons of all ages.

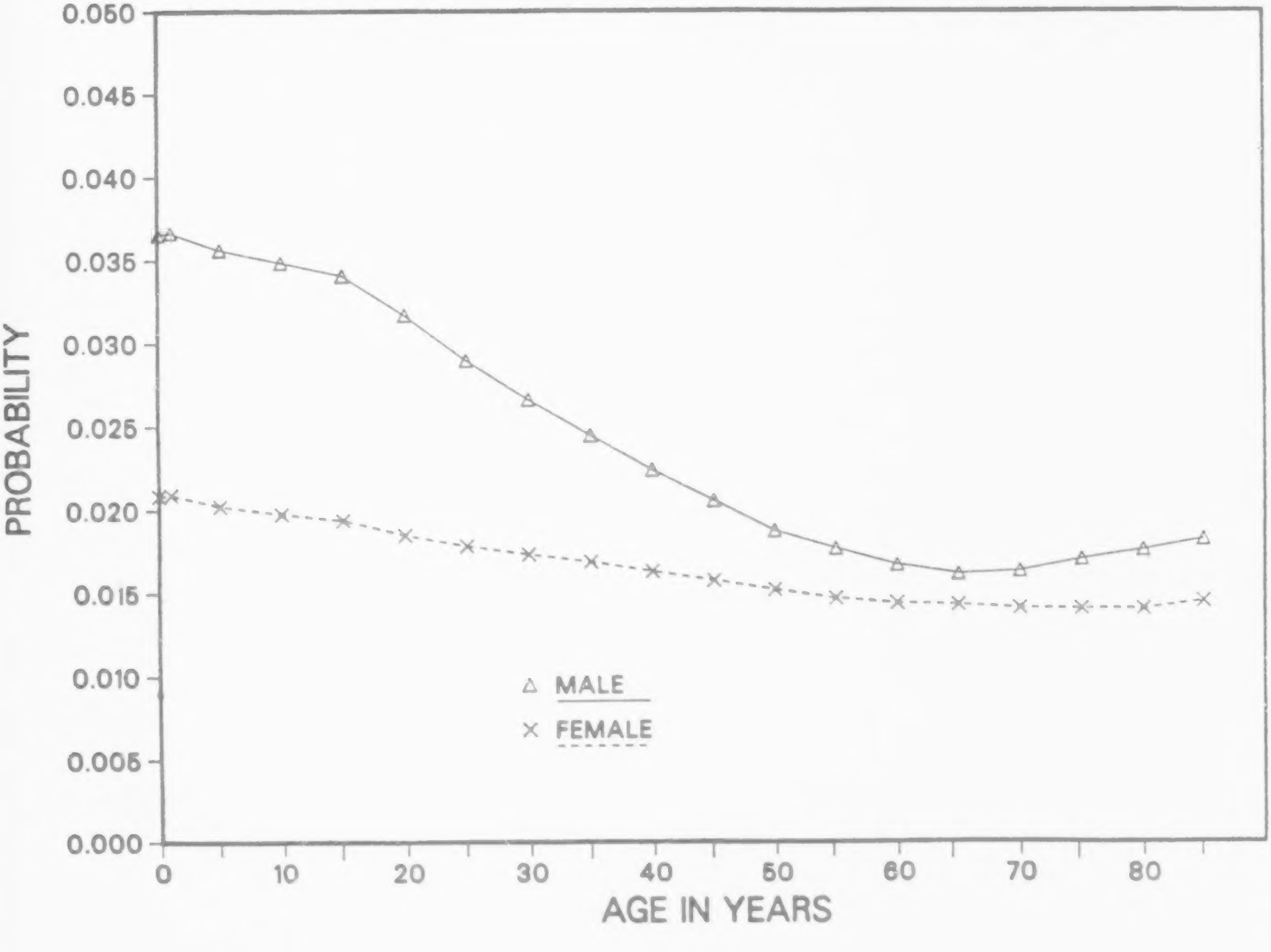
Of the total 3,228 accidental deaths, 1,694 or 52.5 percent of the accidents occurred on streets and highways (Table 2.27). The second most common place of occurrence was the home with 664 deaths (20.6 percent). There were 47 deaths attributed to accidents at industrial places and premises, 42 in public buildings, and 39 on farms. Note that the place of injury was not specified for 13.4 percent of the accidental deaths.

It can be seen from Figure 2.25 that the probability of eventually having an accidental death is greater for younger persons. According to Michigan mortality data from the years 1983 through 1985 the probability of eventually dying from accidental causes is 0.037 for males and 0.021 for females at birth. Probabilities for males decline slowly through childhood and the teenage years, fall rapidly between ages 15 and 50, and thereafter decline more slowly until the lowest probability of 0.016 is reached at age 65-69. For females the probabilities decline more moderately and steadily. Probabilities for males remain much higher than for females until about age 50 and slightly higher after that age.

Table 2.27
Deaths Due to Accidents by Place of Injury, Michigan Residents, 1985

PLACE	NUMBER OF DEATHS
Street and Highway	1,694
Home	664
Place for Recreation and Sport	125
Resident Institution	54
Industrial Place and Premises	47
Public Building	42
Farm	39
Mine and Quarry	5
Other Specified Places	127
Place Not Specified	431
Total	3,228

FIGURE 2.25
PROBABILITY OF EVENTUALLY DYING FROM ACCIDENTAL CAUSE
BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS

The fifth leading cause of death in 1985 was chronic obstructive pulmonary diseases and allied conditions. This group of diseases caused 2,762 Michigan resident deaths. Of these deaths, 1,767 (64.0 percent) were to males (Table 2.28).

The median age at death of persons who died from these respiratory diseases was 73 years, the same as the median for deaths from all causes. However, unlike deaths from all causes where the median for females was substantially higher than for males (77 years and 70 years), the median age of females who died from chronic obstructive pulmonary diseases and allied conditions was lower than that for males (72 years compared to 74 years). The median age for white persons (74 years) was three years higher than that for persons of other races (71 years).

The crude death rate for chronic obstructive pulmonary diseases and allied conditions was 30.4 per 100,000 population. The crude death rate for males was 1.9 times that for females (Table 2.29). Age-specific rates for males and females from Table 2.29 are graphically presented in Figure 2.26. The strong association between chronic obstructive pulmonary diseases and allied conditions and increasing age is clearly evident. Note also that age-specific rates for males are higher than those for females in all age groups at age 45 and beyond. The relative differential between rates for males and females increases steadily with age. In the age group 85 years and over the rate for males is 3.7 times that for females. The age-adjusted death rate for this group of diseases was 2.4 times as high for males as it was for females (31.0 and 12.9 deaths per 100,000 population, respectively).

Age-specific rates for white and other than white persons are displayed in Figure 2.27. Rates were higher for other than white persons in the 35 to 54 age group, after which they were higher for white persons. The age-adjusted death rate for these respiratory diseases for white persons was 9.8 percent above that for other than white persons.

Table 2.30 presents age-adjusted death rates by sex and race for the period 1970–1985 for deaths from this group of respiratory diseases. The age-adjusted death rates for males rose 24.5 percent over the period, while for females the rate in 1985 was 2.3 times higher than in 1970. The increase in age-adjusted rates for females was higher for white females (2.4 times) than for other than white females (1.7 times) between 1985 and 1970. The age-adjusted death rate for the total population of Michigan from chronic obstructive pulmonary diseases and allied conditions was 20.1 in 1985. This approximates the United States provisional age-adjusted rate of 18.6 (see Technical Notes).

Of the 2,762 Michigan resident deaths due to chronic obstructive pulmonary diseases and allied conditions, 1,806 (65.4 percent) were classified as chronic airways obstruction, not elsewhere classified. There were 648 deaths in 1985 due to emphysema, 145 due to asthma, and 140 due to bronchitis (Table 2.31).

Based on mortality data from 1983–1985, the probability of eventual death due to chronic obstructive pulmonary diseases and allied conditions is 0.044 for males and 0.024 for females at birth. The probability for males increases steadily to a peak of 0.053 at age 70 and then declines in the last few age groups. The probability for females remains stable from birth through age 65 and then declines in the oldest age groups (Figure 2.28). By age 85 the probability for females declines to 0.012.

Table 2.28

Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	1	-	1	-	-	-	1	-	1	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	9	4	5	5	2	3	4	2	2	-	-	-
15-19	2	1	1	1	-	1	1	1	-	-	-	-
20-24	7	3	4	6	3	3	1	-	1	-	-	-
25-29	3	1	2	3	1	2	-	-	-	-	-	-
30-34	6	3	3	3	2	1	3	1	2	-	-	-
35-39	8	1	7	6	1	5	2	-	2	-	-	-
40-44	12	7	5	5	2	3	7	5	2	-	-	-
45-49	25	6	19	18	4	14	7	2	5	-	-	-
50-54	63	38	25	48	28	20	15	10	5	-	-	-
55-59	159	89	70	134	78	56	25	11	14	-	-	-
60-64	251	158	93	234	148	86	16	9	7	1	1	-
65-69	398	252	146	367	231	136	31	21	10	-	-	-
70-74	555	374	181	508	335	173	47	39	8	-	-	-
75-79	492	334	158	453	302	151	39	32	7	-	-	-
80-84	405	271	134	375	250	125	30	21	9	-	-	-
85-89	241	152	89	229	145	84	12	7	5	-	-	-
90+	125	73	52	115	66	49	10	7	3	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2762	1767	995	2510	1598	912	251	168	83	1	1	-
Median Age At Last Birthday	73	74	72	74	74	73	71	72	65	61	61	-

Table 2.29
Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	30.4	40.0	21.3	32.6	42.4	23.1	18.3	25.9	11.5
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.6	*	0.7	0.4	*	*	1.3	*	*
15-24 Years	0.5	*	0.6	0.5	*	*	*	*	*
25-34 Years	0.5	*	0.6	0.4	*	*	*	*	*
35-44 Years	2.0	1.6	2.4	1.3	*	1.8	6.7	8.0	*
45-54 Years	10.2	10.5	9.9	8.8	8.7	8.9	19.7	23.9	16.2
55-64 Years	46.4	59.6	34.7	47.2	61.8	34.2	40.4	42.6	38.4
65-74 Years	165.7	250.9	100.5	170.8	254.7	106.6	124.3	219.9	50.7
75-84 Years	317.7	585.1	163.2	324.3	596.5	169.6	255.5	487.4	99.2
85 Years and Over	396.6	809.2	218.7	402.9	824.0	222.5	319.2	637.2	170.4
Age-Adjusted Rate[2]	20.1	31.0	12.9	20.2	31.1	13.0	18.4	28.7	11.1

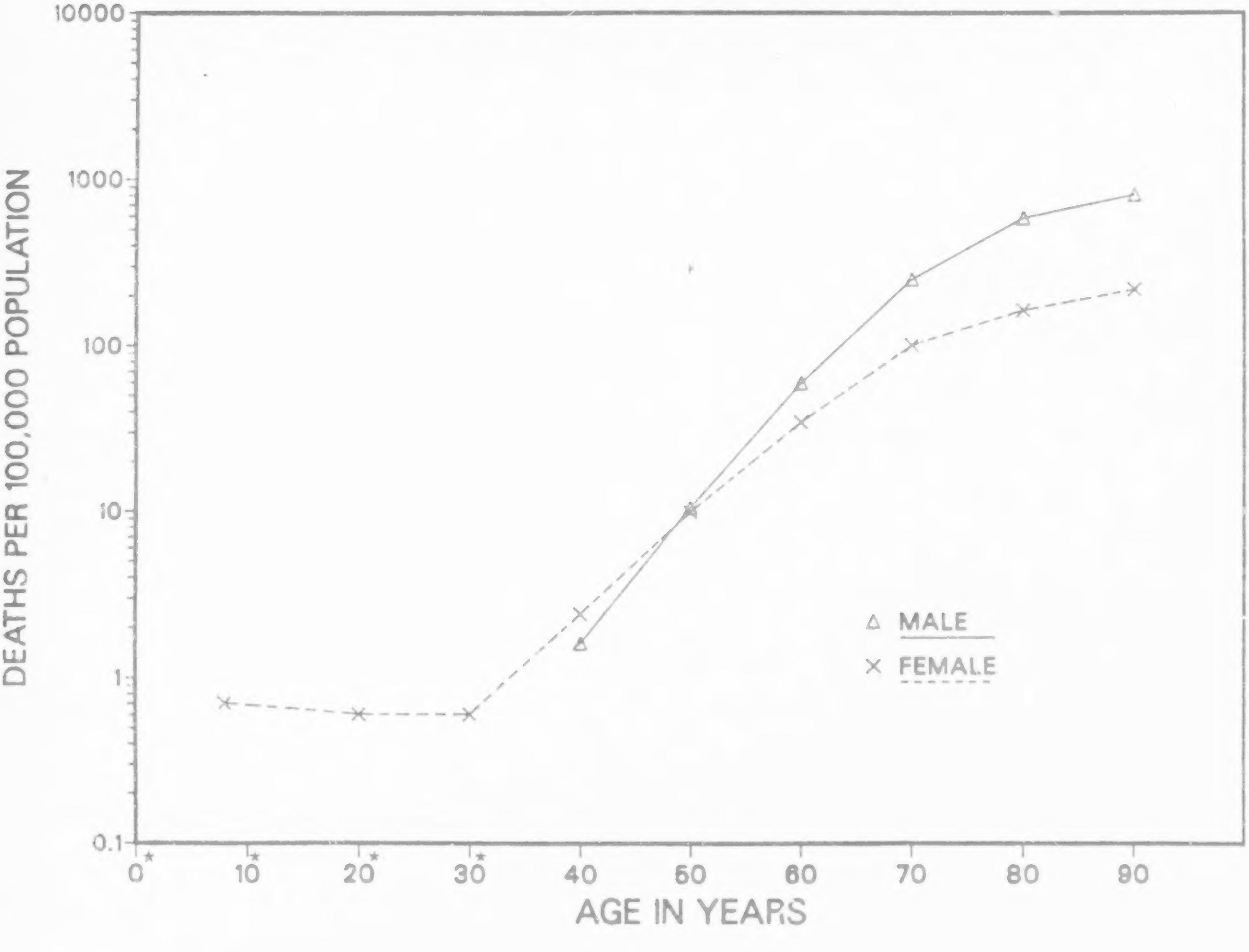
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.26
AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO
CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS
BY SEX, MICHIGAN RESIDENTS, 1985



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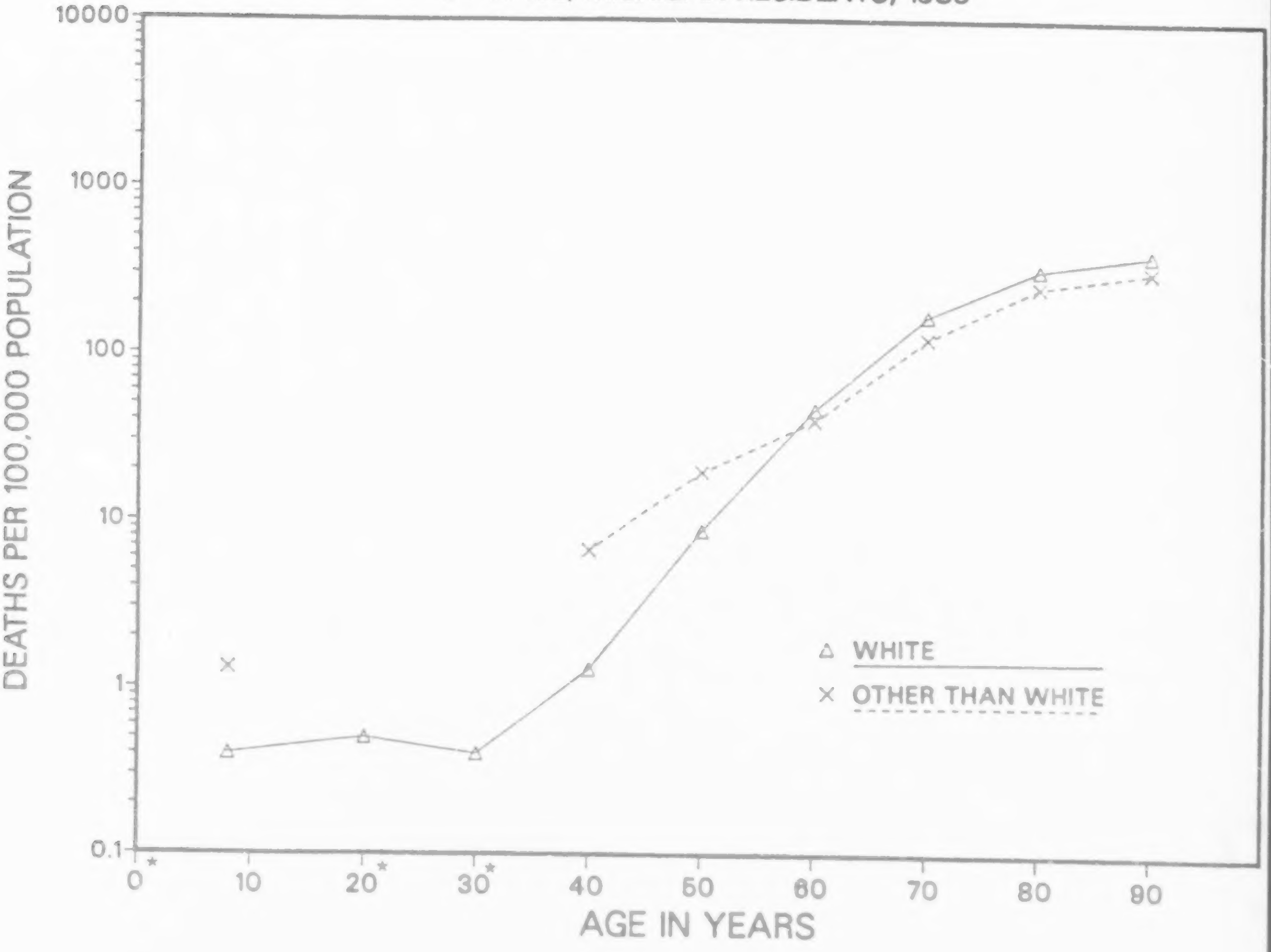
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.27
AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO
CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS
BY RACE, MICHIGAN RESIDENTS, 1985



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[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.30
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions[2] by Race and Sex, Michigan[3] Residents, 1970-1985 and United States Residents, 1979-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	14.2	24.9	5.6	14.3	25.3	5.4	12.3	18.5	6.7
	1971	13.9	24.4	5.6	13.8	24.5	5.4	13.9	22.2	6.5
	1972	14.9	26.5	5.7	15.2	27.2	5.8	11.1	13.3	4.2
	1973	15.4	26.7	6.4	15.6	27.3	6.5	12.2	20.5	5.1
	1974	13.8	24.1	5.8	14.1	24.7	6.0	9.6	17.2	3.1
	1975	14.3	25.1	6.1	14.5	25.6	6.2	11.4	19.0	5.1
	1976	14.7	25.4	6.8	15.0	25.9	6.9	12.0	20.8	5.1
	1977	14.1	24.4	6.5	14.4	25.1	6.5	10.8	17.1	5.9
	1978	15.7	26.1	8.2	15.8	26.3	8.4	13.9	23.7	6.3
	1979	15.2	26.1	7.4	15.5	26.6	7.5	12.7	21.6	5.8
	1980	15.7	25.5	8.9	15.9	25.7	9.1	13.2	22.4	6.0
	1981	16.4	26.7	9.3	16.6	27.1	9.4	13.9	22.5	7.6
	1982	16.3	25.8	9.8	16.4	26.0	9.9	14.5	23.4	7.9
	1983	18.2	27.7	12.0	18.2	27.7	12.2	16.7	26.3	9.6
	1984	18.1	28.5	11.1	18.3	29.0	11.3	14.8	23.9	8.3
	1985	20.1	31.0	12.9	20.2	31.1	13.0	18.4	28.7	11.1
U.S.	1979	14.6	24.3	7.7	14.9	25.0	8.0	10.5	17.4	5.3
	1980	15.9	26.1	8.9	16.3	26.7	9.2	11.5	19.2	5.8
	1981	16.3	26.2	9.5	16.7	26.8	9.8	11.7	19.6	5.9
	1982	16.2	25.5	9.8	16.6	26.2	10.0	11.7	18.7	6.7
	1983	17.4	27.0	10.9	17.9	27.6	11.3	12.7	20.5	7.1
	1984	17.7	27.0	11.4	18.2	27.6	11.8	13.1	21.0	7.5
	1985[4]	18.6	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Categories used for 1970-1978 are 8th Revision ICDA codes 490-493 (bronchitis, emphysema, and asthma) and *519.3 (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema). For years since 1979 9th Revision ICD codes 490-496 are used. No single comparability ratio was developed for the 9th Revision category and the most nearly comparable 8th Revision categories. However, for the combined categories of bronchitis, emphysema, and asthma the provisional comparability ratio is 1.0002, and that for the remaining titles (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema under the 8th Revision and other chronic obstructive pulmonary diseases and allied conditions under the 9th Revision) is 1.0054. Thus, the comparability between the composite categories is quite good. The composite category was not used for ranking causes of death under the 8th Revision and thus appeared in 1979 for the first time among the 10 leading causes of death.

[3] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

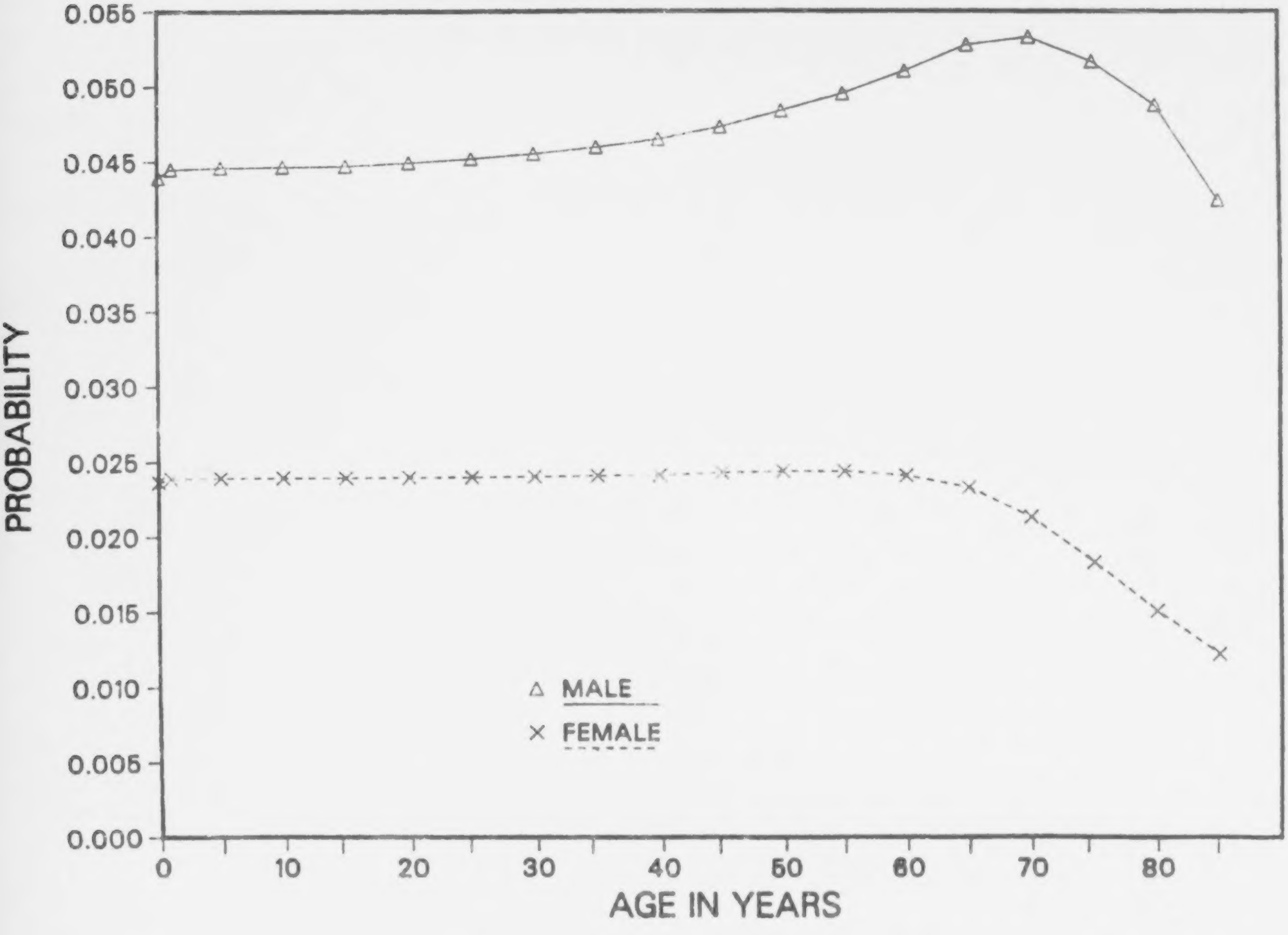
[4] Provisional

Table 2.31
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
174	Chronic Airways Obstruction, not elsewhere classified	1,806	65.4
171	Emphysema	648	23.5
172	Asthma	145	5.2
170	Chronic Bronchitis	117	4.2
169	Bronchitis, not Specified as Acute or Chronic.	23	0.8
173	Bronchiectasis and Extrinsic Allergic Alveolitis . . .	23	0.8
	Total.	2,762	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.28
PROBABILITY OF EVENTUALLY DYING FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985 [1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

PNEUMONIA AND INFLUENZA

One of every 35 deaths that occurred to Michigan residents in 1985 was due to pneumonia and influenza. There were a total of 2,229 such deaths of which 1,118 (50.2 percent) were to females (Table 2.32).

The overall median age at death in 1985 for those dying from pneumonia and influenza was 82 years. This is well above the median age of 73 years for all deaths. The median ages at death for white persons were significantly higher than those for other than white persons. The median age for white males (80) was 9 years greater than that for other than white males (71), while for white females the median of 85 years exceeded by 9 years that for other than white females.

The overall crude death rate for pneumonia and influenza deaths in 1985 was 24.5, compared to a rate of 22.2 in 1984. The crude rate of 25.1 for males was 4.6 percent higher than the rate of 24.0 for females. On an age-adjusted basis, this differential increased significantly. The age-adjusted rate for males exceeded that for females by 80.8 percent (Table 2.33).

The age-specific death rates for males and females given in Table 2.33 are graphically displayed in Figure 2.29. Pneumonia and influenza death rates increased rapidly beyond age 54 with rates for males significantly higher than for females.

The crude rates given in Table 2.33 indicate that a greater proportion of the white population died of pneumonia and influenza in 1985 than was the case for the other than white population. On an age-adjusted basis, however, the rate for the other than white group was 32.8 percent above that for the white group. Age-specific data indicate that the rates for the other than white population were higher from birth to age 75. Among persons 75 years or over, the pneumonia and influenza death rate was higher for white persons (Figure 2.30).

Pneumonia and influenza death rates have declined markedly since 1900 both nationally and in Michigan (Figure 2.31). The annual rate was quite erratic from 1900 through 1945. Since that time the rate has been fairly stable in terms of year to year variation while the general trend has remained downward. Michigan's rate of death due to this cause has been below the national rate every year throughout this century except 1920 and 1923. In 1900, the rate in Michigan was 120.3 while the national statistic was 202.1. The peak year for both was 1918 when the rates for the United States and Michigan were 588.5 and 399.8, respectively. In 1979 century low rates of 15.9 for Michigan and 20.1 for the nation were recorded. Michigan's rate of 24.5 in 1985 was below the provisional rate of 27.9 for the United States.

Michigan's age-adjusted death rate for pneumonia and influenza has been below that for the nation every year between 1970 and 1982 and again in 1985 (Table 2.34). Between 1970 and 1985 the age-adjusted rate for Michigan declined by 22.3 percent. Rates for other than white persons declined more rapidly than rates for white persons. The decline was most dramatic for other than white females for whom the age-adjusted rate dropped from 30.8 in 1970 to 12.6 in 1985, a decline of 59.1 percent. The decline in the age-adjusted rate for other than white males was 54.1 percent between 1970 and 1985. The declines in rates for other than white males and females were mirrored by strong declines in the rates for the United States.

Table 2 32
Deaths Due to Pneumonia and Influenza by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	11	6	5	9	5	4	2	1	1	-	-	-
1-4	8	4	4	8	4	4	-	-	-	-	-	-
5-9	1	-	1	-	-	-	1	-	1	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	3	1	2	1	-	1	2	1	1	-	-	-
20-24	7	3	4	5	3	2	2	-	2	-	-	-
25-29	9	6	3	6	5	1	3	1	2	-	-	-
30-34	21	8	13	11	6	5	10	2	8	-	-	-
35-39	15	11	4	8	7	1	7	4	3	-	-	-
40-44	25	15	10	12	7	5	12	7	5	1	1	-
45-49	20	13	7	17	12	5	2	1	1	1	-	1
50-54	31	20	11	19	13	6	12	7	5	-	-	-
55-59	48	25	23	35	18	17	13	7	6	-	-	-
60-64	87	55	32	68	40	28	19	15	4	-	-	-
65-69	152	95	57	134	83	51	18	12	6	-	-	-
70-74	194	126	68	172	108	64	22	18	4	-	-	-
75-79	276	156	120	238	135	103	37	20	17	1	1	-
80-84	436	228	208	407	213	194	28	14	14	1	1	-
85-89	428	185	243	402	172	230	26	13	13	-	-	-
90+	457	154	303	429	147	282	28	7	21	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2229	1111	1118	1981	978	1003	244	130	114	4	3	1
Median Age At Last Birthday	82	80	84	83	80	85	74	71	76	63	79	47

Table 2.33
Pneumonia and Influenza Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	24.5	25.1	24.0	25.7	26.0	25.5	17.8	20.0	15.7
Under 1 Year	8.2	8.8	7.6	8.2	9.0	*	*	*	*
1-14 Years	0.5	*	0.6	0.6	*	*	*	*	*
15-24 Years	0.5	*	0.7	0.4	*	*	*	*	*
25-34 Years	1.8	1.7	1.9	1.2	1.6	0.9	5.1	*	7.2
35-44 Years	4.0	5.3	2.7	2.4	3.5	1.4	14.0	17.5	11.0
45-54 Years	5.9	7.9	4.1	4.9	6.8	3.1	12.5	15.9	9.7
55-64 Years	15.3	19.3	11.7	13.2	15.8	10.9	31.5	46.9	18.3
65-74 Years	60.2	88.6	38.4	59.7	86.0	39.7	63.7	110.0	28.2
75-84 Years	252.2	371.3	183.3	253.4	378.2	182.5	240.7	312.7	192.2
85 Years and Over	959.1	1219.2	846.9	973.2	1245.7	856.5	783.5	910.3	724.2
Age-Adjusted Rate[2]	13.0	17.9	9.9	12.5	17.3	9.3	16.6	22.0	12.6

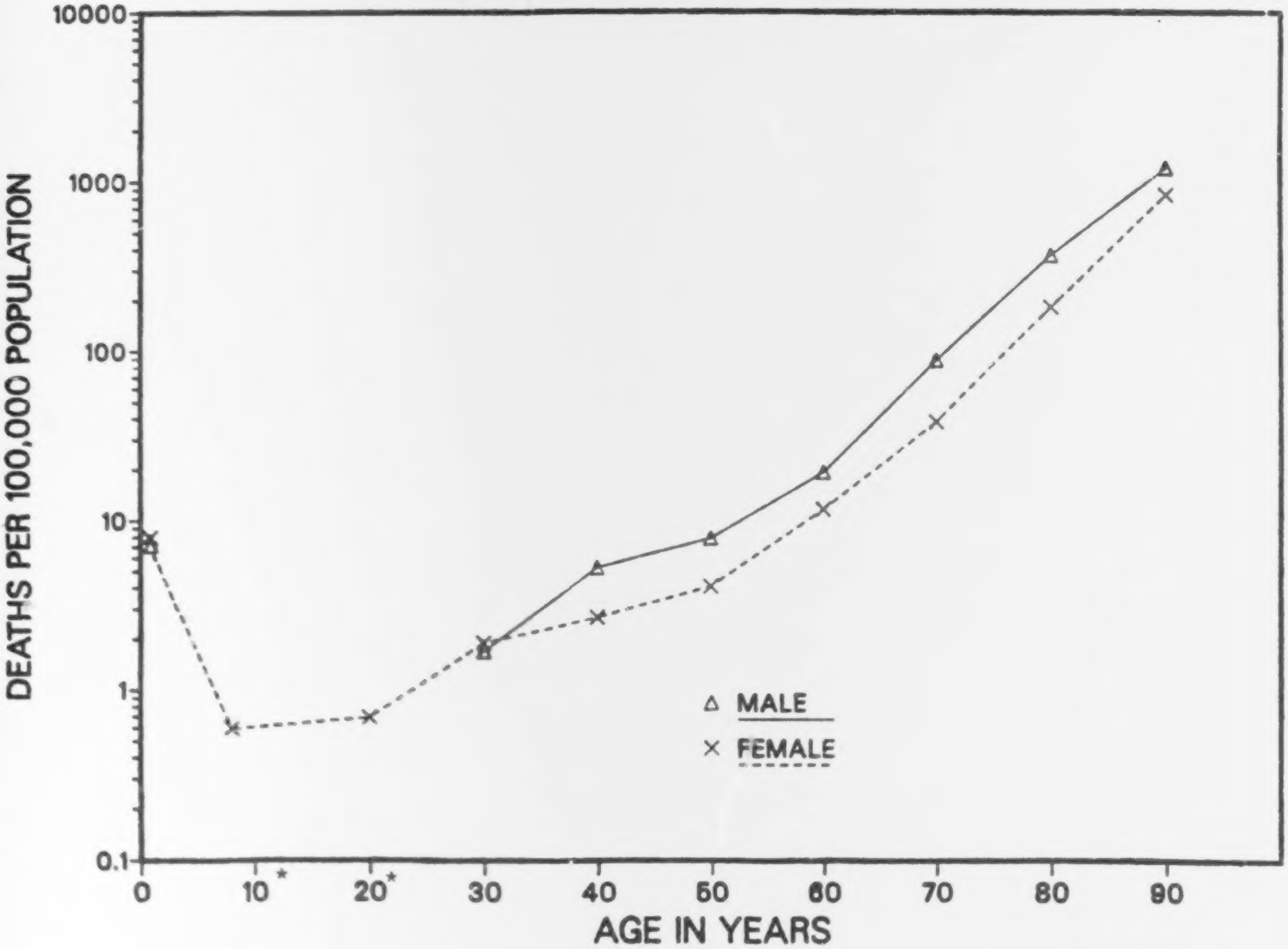
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.29
AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1985



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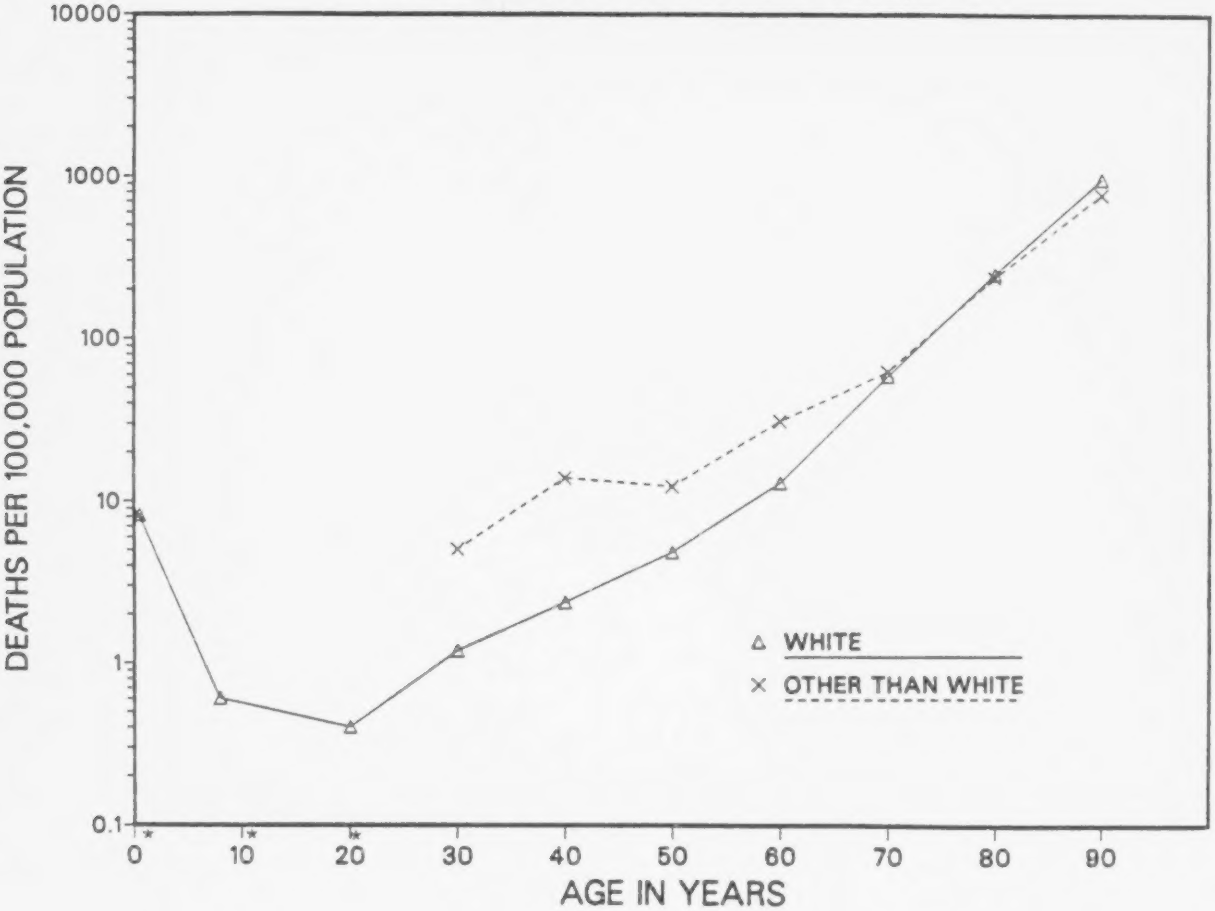
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.30

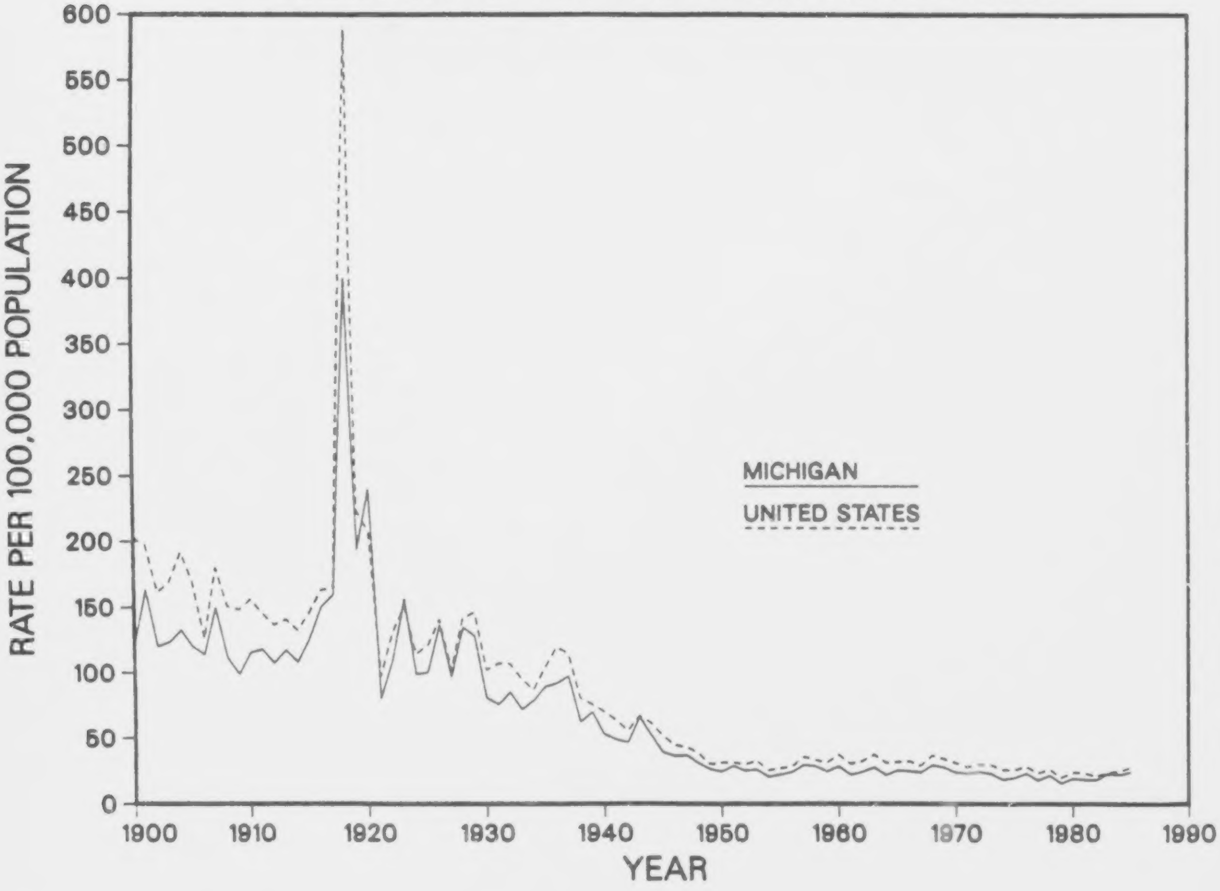
AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.31
PNEUMONIA AND INFLUENZA DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] Pneumonia and influenza death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.34
Age-Adjusted Pneumonia and Influenza Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	19.2	24.7	14.6	16.7	21.8	12.5	38.8	47.9	30.8
	1971	17.7	23.9	12.7	15.1	20.6	11.3	36.0	50.7	23.1
	1972	18.7	25.7	12.9	16.8	23.1	11.8	33.1	47.3	20.7
	1973	17.0	21.9	13.2	14.9	19.4	11.5	34.2	43.3	26.5
	1974	13.3	17.7	10.0	12.0	15.7	9.5	22.9	34.0	13.7
	1975	14.0	18.6	10.6	13.0	17.1	10.0	21.8	29.6	15.1
	1976	15.7	20.8	12.0	14.8	19.5	11.5	22.2	30.5	15.4
	1977	12.2	17.6	8.2	11.4	16.4	7.8	17.8	26.1	11.0
	1978	14.1	18.1	11.2	13.7	17.6	11.0	16.2	21.1	12.3
	1979	9.6	13.3	7.1	8.9	12.3	6.7	14.4	19.9	9.8
	1980	11.7	16.1	8.6	10.8	14.5	8.2	18.8	28.4	11.2
	1981	10.8	15.1	7.9	9.8	13.6	7.4	18.1	26.6	11.4
	1982	10.8	15.1	7.9	10.1	14.2	7.4	15.3	21.3	10.8
	1983	13.0	17.9	9.5	12.1	16.5	9.1	19.3	28.3	12.2
	1984	12.4	17.4	9.0	11.6	16.5	8.5	17.7	24.2	12.8
	1985	13.0	17.9	9.9	12.5	17.3	9.3	16.6	22.0	12.6
U.S.	1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
	1971	19.2	25.1	14.6	17.5	22.8	13.4	31.6	42.2	22.6
	1972	20.7	27.5	15.5	19.0	25.3	14.4	32.4	44.3	22.6
	1973	19.9	26.4	15.0	18.3	24.4	13.9	31.0	42.0	22.2
	1974	16.8	22.4	12.6	15.6	20.8	11.8	25.1	34.9	17.2
	1975	16.4	22.2	12.1	15.4	20.8	11.5	23.6	33.4	15.8
	1976	17.1	22.9	13.0	16.1	21.5	12.4	24.0	33.5	16.5
	1977	13.9	19.1	10.2	13.0	17.8	9.6	20.6	29.5	13.6
	1978	15.1	20.6	11.3	14.2	19.3	10.7	21.4	30.8	14.2
	1979	11.2	15.4	8.2	10.5	14.4	7.8	15.8	22.8	10.5
	1980	12.9	17.4	9.8	12.2	16.2	9.4	18.0	26.1	11.9
	1981	12.3	16.6	9.2	11.6	15.6	9.0	16.3	24.0	10.5
	1982	10.9	15.2	8.0	10.3	14.3	7.6	14.4	21.1	9.5
	1983	11.8	16.2	8.8	11.3	15.3	8.6	14.9	22.1	9.6
	1984	12.2	16.7	9.1	11.6	15.8	8.8	15.8	23.0	10.5
	1985[4]	13.2	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 0.9264. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

[4] Provisional.

The majority of deaths due to pneumonia and influenza were not attributed to a specific organism. Pneumonia due to other and unspecified organisms (1,814) accounted for 81.4 percent of all Michigan pneumonia and influenza deaths in 1985 (Table 2.35). Another 9.2 percent of the deaths were due to bronchopneumonia, organism unspecified, and 6.9 percent were due to pneumococcal and other bacterial pneumonia. The three most frequent categories of pneumonia and influenza deaths together accounted for 97.5 percent of all such deaths. Influenza was the direct cause of 1.6 percent of the pneumonia and influenza deaths in 1985, compared to 4.5 percent in 1983.

The likelihood of eventual death being caused by pneumonia and influenza is between 0.033 and 0.034 for females and between 0.030 and 0.031 for males from birth to age 49. The calculated probabilities for each sex increase after this age, with probabilities for males increasing more rapidly than those for females. Based on the Michigan mortality experience of 1983-1985 by age 85 the chances of eventually dying from pneumonia and influenza are 0.059 for males and 0.052 for females (Figure 2.32).

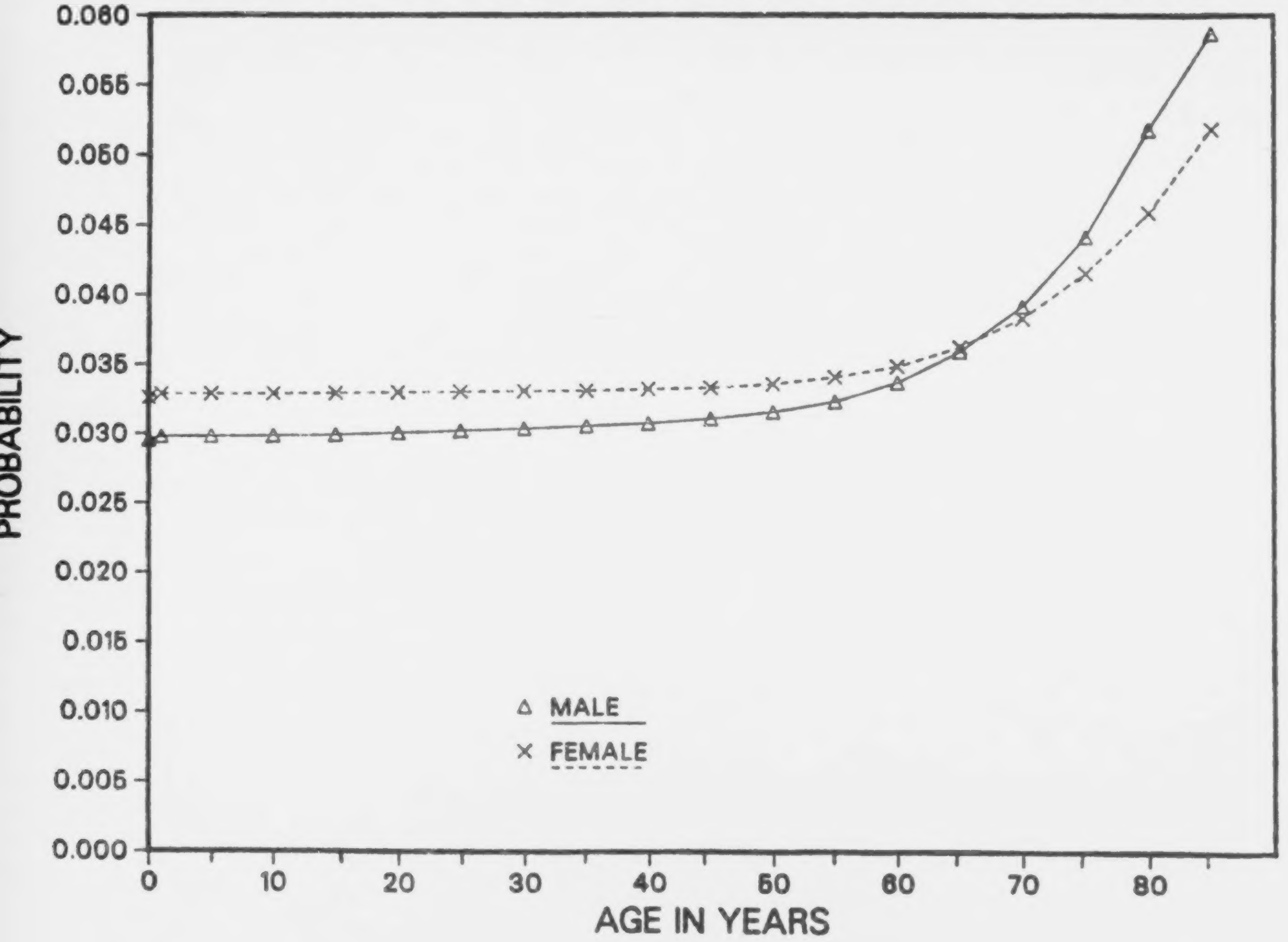
Table 2.35
Deaths Due to Pneumonia and Influenza by Specific Cause,
Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
167	Pneumonia due to Other and Unspecified Organism	1,814	81.4
166	Bronchopneumonia, Organism Unspecified	206	9.2
165	Pneumococcal and Other Bacterial Pneumonia	154	6.9
168	Influenza	36	1.6
164	Viral Pneumonia	19	0.9
	Total	2,229	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the _International Classification of Diseases_, WHO.

FIGURE 2.32

PROBABILITY OF EVENTUALLY DYING FROM PNEUMONIA AND INFLUENZA BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

DIABETES MELLITUS

In 1985 1,387 Michigan resident deaths were attributed to diabetes mellitus. the sixth leading cause of death. This is 89 fewer deaths than were caused by this disease in 1984. Deaths to females numbered 793 or 57.2 percent of all diabetes mellitus deaths. There were 594 diabetes mellitus deaths to males in 1985.

The median age at death for persons dying from diabetes mellitus was 73 years (Table 2.36). This is equal to the median age of all deaths. Males dying from this disease had a median age of 70 years, whereas the median for females was 74 years. The median for white males was 71 years compared to 76 years for white females. For other than white males the median was 68 years and that for other than white females was 69 years.

Diabetes mellitus death rates by age. race, and sex are presented in Table 2.37. The diabetes mellitus crude death rate was 15.3 in 1985. The crude rate for females was 17.0, about 27 percent higher than the rate of 13.4 for males. When age-adjusted rates are examined, however, the rates for males is 14.4 percent higher than the rate for females. Age-specific mortality rates for males and females presented in Table 2.37 are graphically displayed in Figure 2.33. Rates for males were similar to or higher than those for females. Rates for both sexes increased steadily with advancing age.

The crude diabetes mellitus death rate for other than white persons was 7.3 percent above that of white persons (16.2 compared to 15.1). The age-adjusted rate for the other than white population was 83.0 percent higher than that for the white population. The age-adjusted rate for other than white females was 109.3 percent above that of their white counterparts, while the age-adjusted rate for other than white males was 53.8 percent above that of white males. Age-specific rates for other than white persons were higher than those for white persons for all age groups under age 85 with sufficient number of events to calculate rates (Figure 2.34). The greatest relative differential occurred for ages 45 through 54, where the rate for other than white persons was more than four times the rate for white persons.

Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.35). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. From 22.6 in 1950 the rate dipped somewhat then rose to a peak of 27.0 in 1966. Since then the rate has declined 43.3 percent to 15.3 in 1985.

The national range in diabetes mellitus death rates in the first half of this century was from 11.0 in 1900 to 27.1 in 1943. The rate for the nation since 1949, though more stable than Michigan's rate, has tended to follow the same pattern. A peak of 19.2 was reached in 1968. Since that time the rate for the nation has declined by 15.6 percent to a provisional rate of 16.2 in 1985.

The diabetes mellitus death rate for the nation was generally above Michigan's rate for the first 25 or so years in this century. For the 40 years from 1942 through 1982, Michigan's rate was above that of the nation. Through the 1960's the differential between the rates for Michigan and the United States was quite large. In 1982 and again in 1985 the Michigan rates were below the United States rates. In 1985 Michigan's rate (15.3) was 5.6 percent below the provisional rate of 16.2 for the United States.

Age-adjusted death rates for diabetes mellitus for the years 1970-1985 are presented in Table 2.38. These rates have generally declined both in Michigan and the

Table 2.36
Deaths Due to Diabetes Mellitus by Age, Race, and Sex,
Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	2	-	2	2	-	2	-	-	-	-	-	-
15-19	2	1	1	1	-	1	1	1	-	-	-	-
20-24	6	3	3	3	1	2	3	2	1	-	-	-
25-29	9	3	6	7	3	4	2	-	2	-	-	-
30-34	14	10	4	12	9	3	2	1	1	-	-	-
35-39	20	13	7	16	12	4	4	1	3	-	-	-
40-44	22	15	7	16	12	4	6	3	3	-	-	-
45-49	22	15	7	12	9	3	10	6	4	-	-	-
50-54	41	23	18	25	17	8	16	6	10	-	-	-
55-59	88	47	41	73	41	32	15	6	9	-	-	-
60-64	143	71	72	115	58	57	28	13	15	-	-	-
65-69	187	76	111	149	65	84	38	11	27	-	-	-
70-74	212	91	121	170	72	98	42	19	23	-	-	-
75-79	224	87	137	197	77	120	27	10	17	-	-	-
80-84	182	74	108	163	66	97	19	8	11	-	-	-
85-89	139	38	101	132	35	97	7	3	4	-	-	-
90+	74	27	47	71	27	44	3	-	3	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1387	594	793	1164	504	660	223	90	133	-	-	-
Median Age At Last Birthday	73	70	74	74	71	76	68	68	69	-	-	-

Table 2.37
Diabetes Mellitus Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	15.3	13.4	17.0	15.1	13.4	16.7	16.2	13.9	18.4
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.4	*	*	*	*	*	*	*	*
25-34 Years	1.4	1.6	1.2	1.4	1.7	1.0	*	*	*
35-44 Years	4.2	5.7	2.7	3.7	5.6	1.8	7.4	*	8.3
45-54 Years	7.3	9.1	5.6	4.9	7.0	2.9	23.2	23.9	22.7
55-64 Years	26.1	28.5	24.1	24.0	26.9	21.5	42.4	40.5	43.9
65-74 Years	69.4	66.9	71.3	62.3	61.7	62.8	127.5	110.0	140.9
75-84 Years	143.8	155.7	136.9	141.0	154.5	133.3	170.3	165.5	173.6
85 Years and Over	230.8	233.8	229.6	237.7	242.1	235.9	145.1	*	149.1
Age-Adjusted Rate[2]	10.3	11.1	9.7	9.4	10.4	8.6	17.2	16.0	18.0

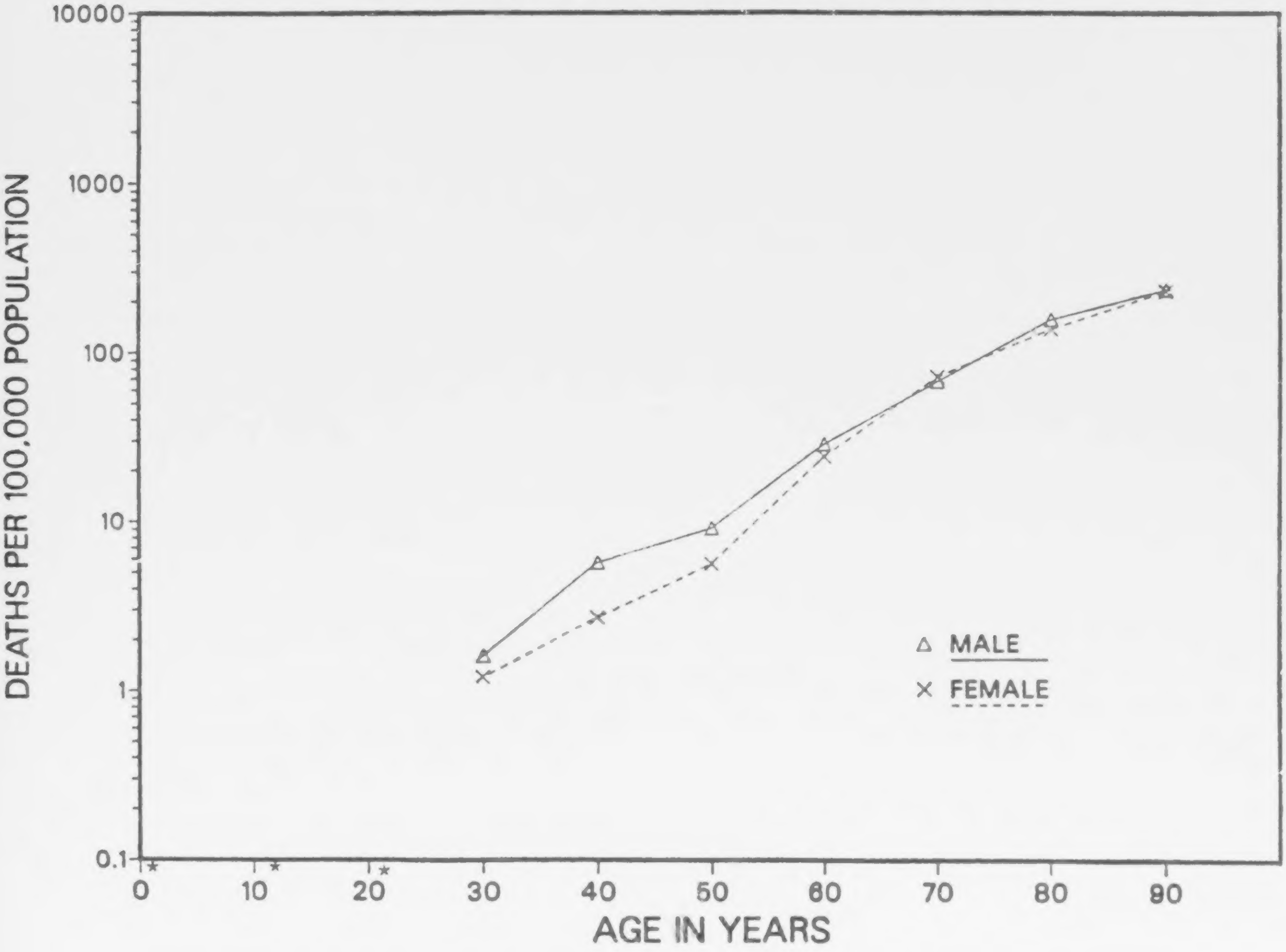
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data

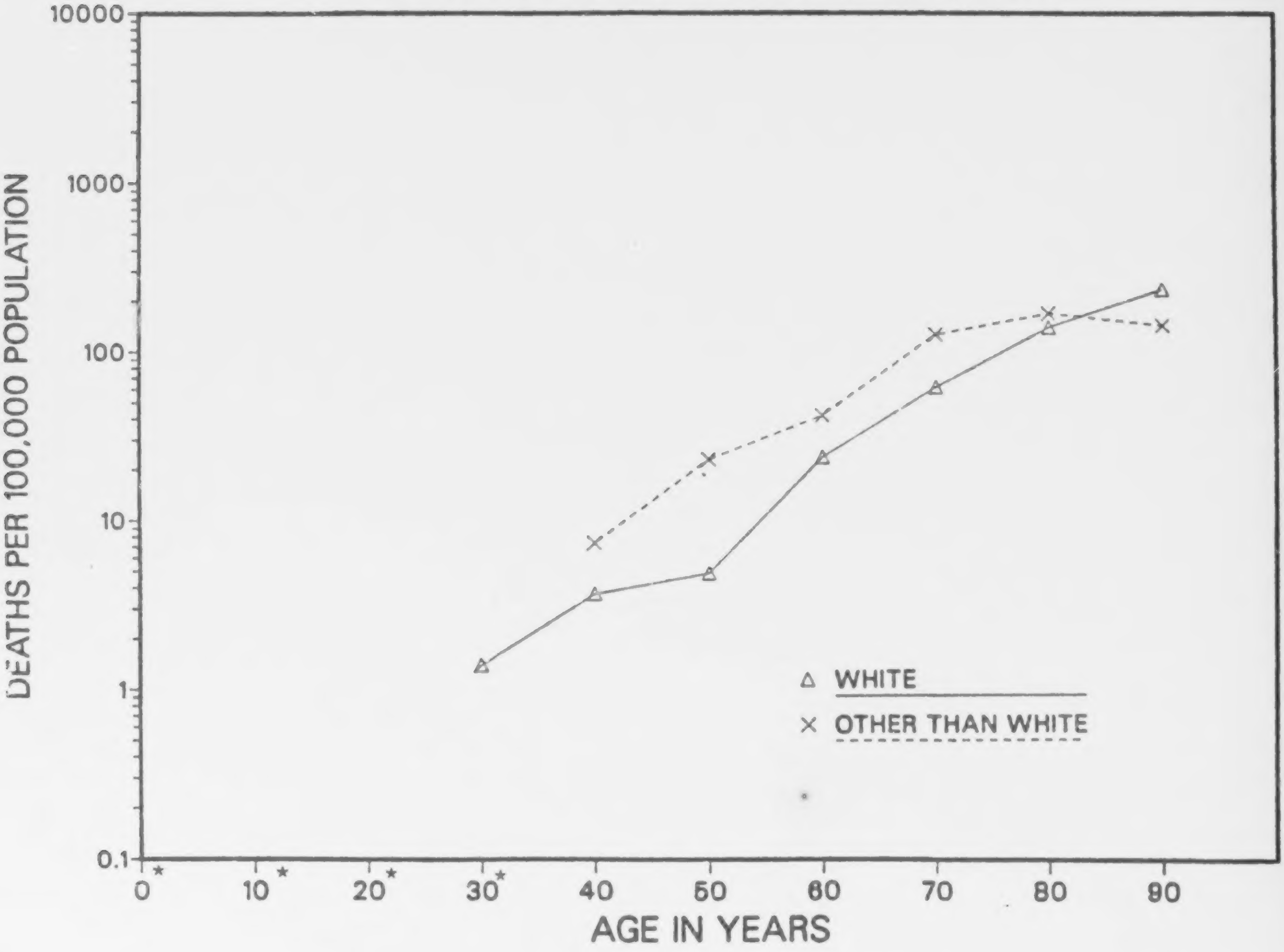
FIGURE 2.33
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.34
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1985

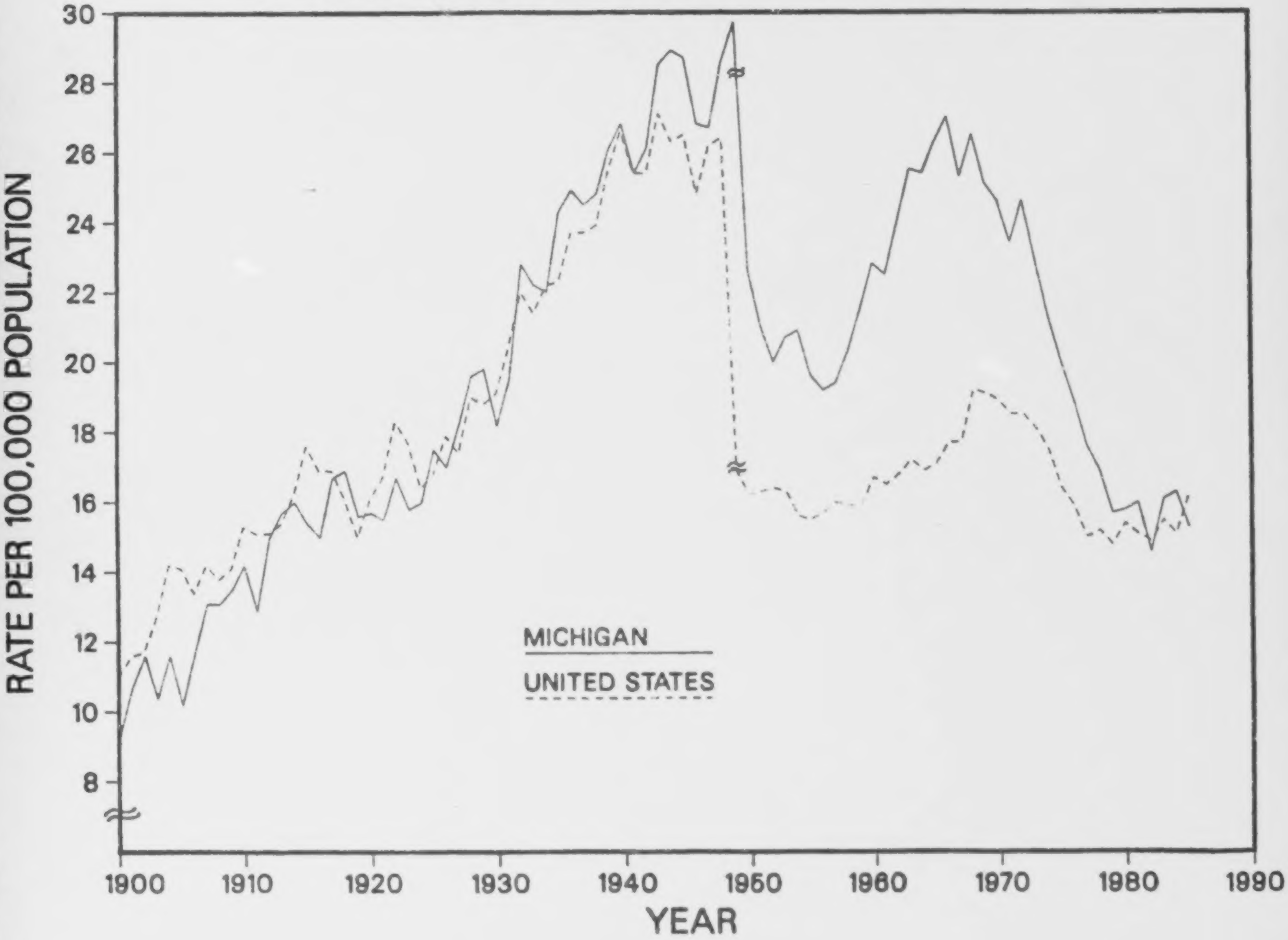


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.35

DIABETES MELLITUS DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisiona

[2] The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

Table 2.38
Age-Adjusted Diabetes Mellitus Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	20.2	20.8	19.8	18.8	19.9	17.7	34.3	29.1	39.4
	1971	18.9	17.4	20.1	17.5	16.6	18.1	31.2	23.8	37.7
	1972	19.6	18.7	20.2	18.1	17.7	18.4	32.0	27.5	36.2
	1973	18.0	17.4	18.2	16.7	16.4	16.8	28.3	25.5	30.6
	1974	16.2	16.0	16.3	15.7	15.8	15.5	20.2	17.5	22.5
	1975	14.9	14.8	14.9	14.2	14.2	14.0	21.1	19.8	22.3
	1976	13.8	13.7	13.8	12.7	12.6	12.7	22.7	22.5	22.9
	1977	12.9	13.3	12.5	12.1	12.6	11.6	19.8	19.3	20.3
	1978	12.1	12.3	11.8	11.1	11.7	10.4	20.6	16.7	23.5
	1979	11.2	11.1	11.2	10.7	11.2	10.3	14.7	10.5	18.2
	1980	11.2	11.0	11.3	10.5	10.6	10.4	16.8	14.5	18.5
	1981	11.2	11.9	10.6	10.4	11.4	9.8	16.8	16.1	17.4
	1982	10.0	10.4	9.7	9.4	10.0	8.9	14.7	13.3	16.0
	1983	11.3	11.2	11.4	10.6	10.6	10.7	16.5	15.8	16.9
	1984	11.0	11.6	10.6	10.1	11.1	9.4	17.9	15.3	19.8
	1985	10.3	11.1	9.7	9.4	10.4	8.6	17.2	16.0	18.0
U.S.	1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	29.3
	1971	13.7	13.2	14.0	12.3	12.4	12.2	25.6	20.3	30.0
	1972	13.5	13.1	13.7	12.2	12.2	12.0	25.9	21.1	29.7
	1973	13.0	12.8	13.1	11.7	11.9	11.5	25.0	21.0	28.2
	1974	12.4	12.1	12.6	11.2	11.4	11.0	23.1	18.7	26.6
	1975	11.4	11.3	11.4	10.3	10.6	10.0	21.3	17.8	23.9
	1976	10.9	10.8	10.9	9.8	10.0	9.5	20.5	17.4	22.9
	1977	10.2	10.3	10.1	9.2	9.7	8.8	19.0	16.2	21.2
	1978	10.2	10.3	10.0	9.2	9.7	8.8	18.5	16.2	20.2
	1979	9.8	10.0	9.5	8.8	9.3	8.3	18.1	16.1	19.5
	1980	10.1	10.2	10.0	9.1	9.5	8.7	18.8	16.4	20.6
	1981	9.8	10.0	9.6	8.8	9.3	8.4	17.9	15.6	19.5
	1982	9.6	9.8	9.3	8.7	9.2	8.3	16.7	14.7	18.1
	1983	9.9	9.9	9.8	8.9	9.2	8.6	17.8	16.0	19.0
	1984	9.5	9.8	9.2	8.5	9.0	8.0	17.4	16.0	18.4
	1985[3]	10.1	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

United States for all population groups. The rate for the total population of Michigan has declined by 49.0 percent since 1970. The rate for the U.S. declined by 28.4 percent between 1970 and 1985.

The declines in the age-adjusted rates for other than white persons were much greater in Michigan than those observed for these groups nationally. Michigan's rates for other than white persons were substantially higher than comparable rates for the nation in 1970, were equal to or lower than those for the nation between 1979 and 1983 and again in 1985. In 1984 the Michigan rate for other than white persons was higher than the national rate. Age-adjusted rates for white persons in Michigan also declined more sharply than comparable rates for the nation. However, they remained higher than those of the nation throughout the period.

In 1985 77.8 percent of all diabetes mellitus deaths were without mention of complication. Diabetes with renal manifestations caused 88 deaths, while diabetes with peripheral circulatory disorders resulted in an additional 73 deaths. There were 111 deaths in 1985 from diabetes with ketoacidosis or coma. These are deaths where a diabetic crisis was involved (Table 2.39).

At birth, the probability of eventual death due to diabetes mellitus is 0.015 for males and 0.023 for females (Figure 2.36). The probability of death from diabetes mellitus for females is relatively stable from birth to age 65 and declines after that age. Females are less likely to eventually die from this cause at ages 65 and older than when they were born. Probabilities for males are consistently below those for females, but decline very little in the older ages.

Table 2.39
Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1985

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
250.0	Diabetes Mellitus without Mention of Complication	1,079	77.8
250.3	Diabetes with Renal Manifestations	88	6.3
250.6	Diabetes with Peripheral Circulatory Disorders	73	5.3
250.1	Diabetes with Ketoacidosis	64	4.6
250.2	Diabetes with Coma	47	3.4
250.7	Diabetes with Other Specified Manifestations	27	1.9
250.5	Diabetes with Neurological Manifestations	7	0.5
250.4	Diabetes with Ophthalmic Manifestations	1	0.1
250.9	Diabetes with Unspecified Complications	1	0.1
	Total	1,387	100.0

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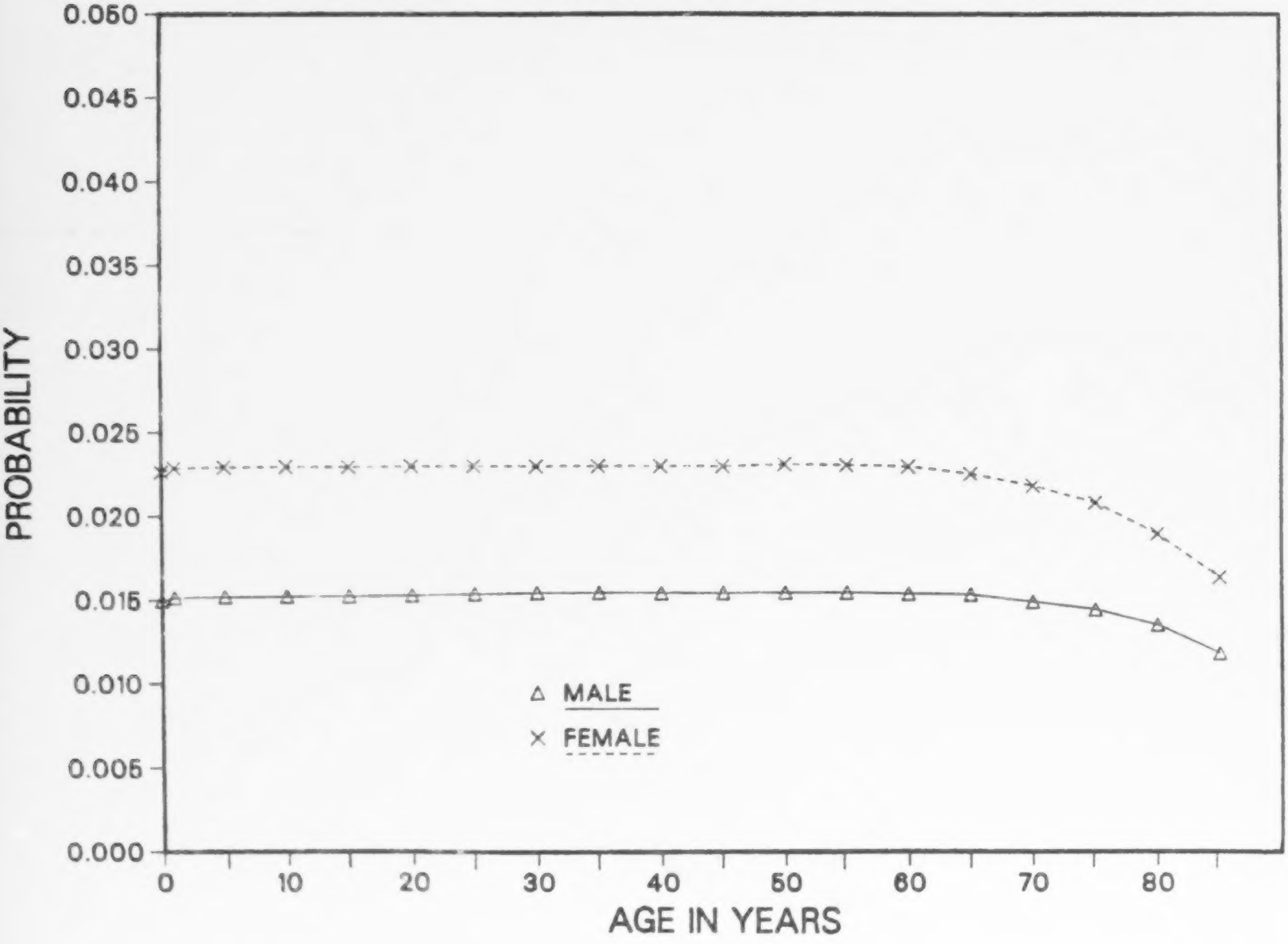
[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.36

PROBABILITY OF EVENTUALLY DYING FROM DIABETES MELLITUS BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC LIVER DISEASE AND CIRRHOSIS

The 8th leading cause of Michigan resident deaths in 1985 was chronic liver disease and cirrhosis. This category was termed cirrhosis of the liver prior to 1979. There were 1,256 deaths attributed to this category in 1985, of which 65.8 percent were to males.

The median age for deaths due to chronic liver disease and cirrhosis (59 years) was 14 years below that for deaths from all causes (Table 2.40). For deaths from this cause in 1985 the median age was 58 years for males and 62 years for females. The median ages at death for white males and females were 60 and 64 years, respectively. For both other than white males and females the median ages at death were 49 years.

Death rates for chronic liver disease and cirrhosis by age, race, and sex are presented in Table 2.41. In 1985 the crude rate for males was 2.0 times the rate for females while the age-adjusted rate for males was 2.3 times that for females. Age-specific rates for males ranged from 1.8 to 2.7 times those for females (Figure 2.37). The highest rate for both sexes were for the age group 65–74 years.

The crude mortality rate for deaths due to chronic liver disease and cirrhosis for other than white persons was twice the rate for white persons. The age-adjusted rate for other than white persons was 2.9 times the rate for white persons. The differential can be traced to the rates for ages 25 through 64. The highest age-specific rate for white persons was 52.1 deaths per 100,000 population in the age group 65–74 years. For other than white persons the peak rate (73.3) was observed for the age group 45–54 years (Figure 2.38).

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Death rates due to this cause rose to a peak of 13.1 in 1916, after which the relative frequency of cirrhosis deaths fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point until 1936 when they began increasing slowly. A peak of 12.4 was reached by 1948. The statistics for Michigan shown in Figure 2.39 after 1949 are not comparable with preceding years due to a revision of the underlying cause of death determination. By isolating the period 1950–1985, this problem can be ignored. Michigan's mortality rate for this disease doubled between 1950 and 1972, when the highest rate of the century was recorded (19.7). The rate of 13.8 in 1985 was 30 percent below the rate of 1972.

The cirrhosis of the liver mortality rate for the United States was well above Michigan's rate early in this century. The highest rate for the nation during the first half of the century occurred in 1907 (14.8). The rates for Michigan and the nation were similar from about 1916 through 1968. Between 1969 and 1972, rates for Michigan rose above those for the nation. The sharp drop in Michigan's rate since 1972 has brought the statistic for the state closer to the national figure. In 1985 the chronic liver disease and cirrhosis death rate of 13.8 for Michigan was 23.2 percent above the provisional rate of 11.2 for the nation.

Age-adjusted death rates by sex and race for chronic liver disease and cirrhosis for the years 1970–1985 are recorded in Table 2.42 (see Technical Notes). These rates generally peaked about 1972 in Michigan and have tended to decline since then. For the U.S. the increases observed in the early part of the decade were less pronounced, as were the declines after that time. The rates in Michigan for other than white males have been substantially higher than for all other groups, including the rates for other than white males observed nationally. The rates for other than white females in Michigan have also

Table 2.40
Deaths Due to Chronic Liver Disease and Cirrhosis by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	1	1	-	1	1	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	1	-	1	-	-	-	1	-	1	-	-	-
20-24	2	1	1	2	1	1	-	-	-	-	-	-
25-29	14	5	9	5	-	5	9	5	4	-	-	-
30-34	64	45	19	27	19	8	37	26	11	-	-	-
35-39	69	46	23	32	23	9	37	23	14	-	-	-
40-44	91	69	22	44	33	11	47	36	11	-	-	-
45-49	107	72	35	65	43	22	42	29	13	-	-	-
50-54	123	87	36	83	59	24	40	28	12	-	-	-
55-59	162	122	40	131	99	32	31	23	8	-	-	-
60-64	194	118	76	155	94	61	39	24	15	-	-	-
65-69	171	103	68	151	88	63	20	15	5	-	-	-
70-74	129	89	40	116	79	37	13	10	3	-	-	-
75-79	66	40	26	58	36	22	8	4	4	-	-	-
80-84	41	19	22	37	17	20	4	2	2	-	-	-
85-89	20	9	11	20	9	11	-	-	-	-	-	-
90+	-	-	-	-	-	-	-	-	-	-	-	-
Not Stated	1	1	-	-	-	-	1	1	-	-	-	-
All Ages	1256	827	429	927	601	326	329	226	103	-	-	-
Median Age At Last Birthday	59	58	62	62	60	64	49	49	49	-	-	-

Table 2.41
Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis, by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.8	18.7	9.2	12.0	15.9	8.3	23.9	34.8	14.2
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	4.7	6.1	3.4	2.3	2.7	1.9	18.0	26.7	10.8
35-44 Years	16.0	23.4	8.8	8.8	13.0	4.6	62.1	94.0	34.5
45-54 Years	26.6	38.0	16.0	19.7	27.7	12.0	73.3	113.6	40.5
55-64 Years	40.3	57.9	24.7	36.6	52.5	22.4	68.9	100.2	42.1
65-74 Years	52.2	77.0	33.2	52.1	75.2	34.5	52.6	91.6	22.5
75-84 Years	37.9	57.1	26.8	37.2	57.3	25.8	44.4	55.2	37.2
85 Years and Over	22.8	36.0	17.1	23.4	35.1	18.4	*	*	*
Age-Adjusted Rate[2]	12.6	18.2	7.8	10.1	14.5	6.3	29.2	44.4	16.6

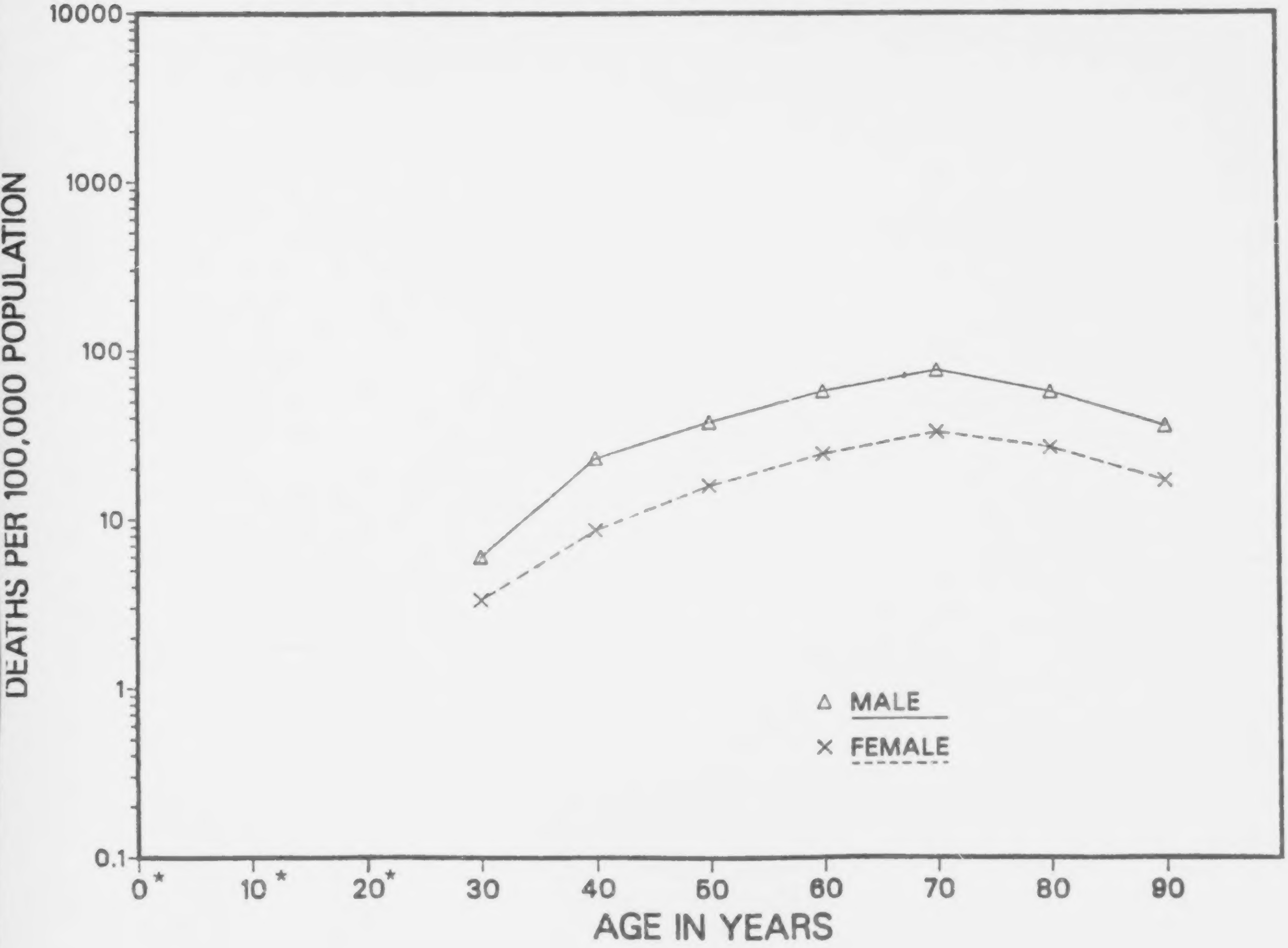
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.37
AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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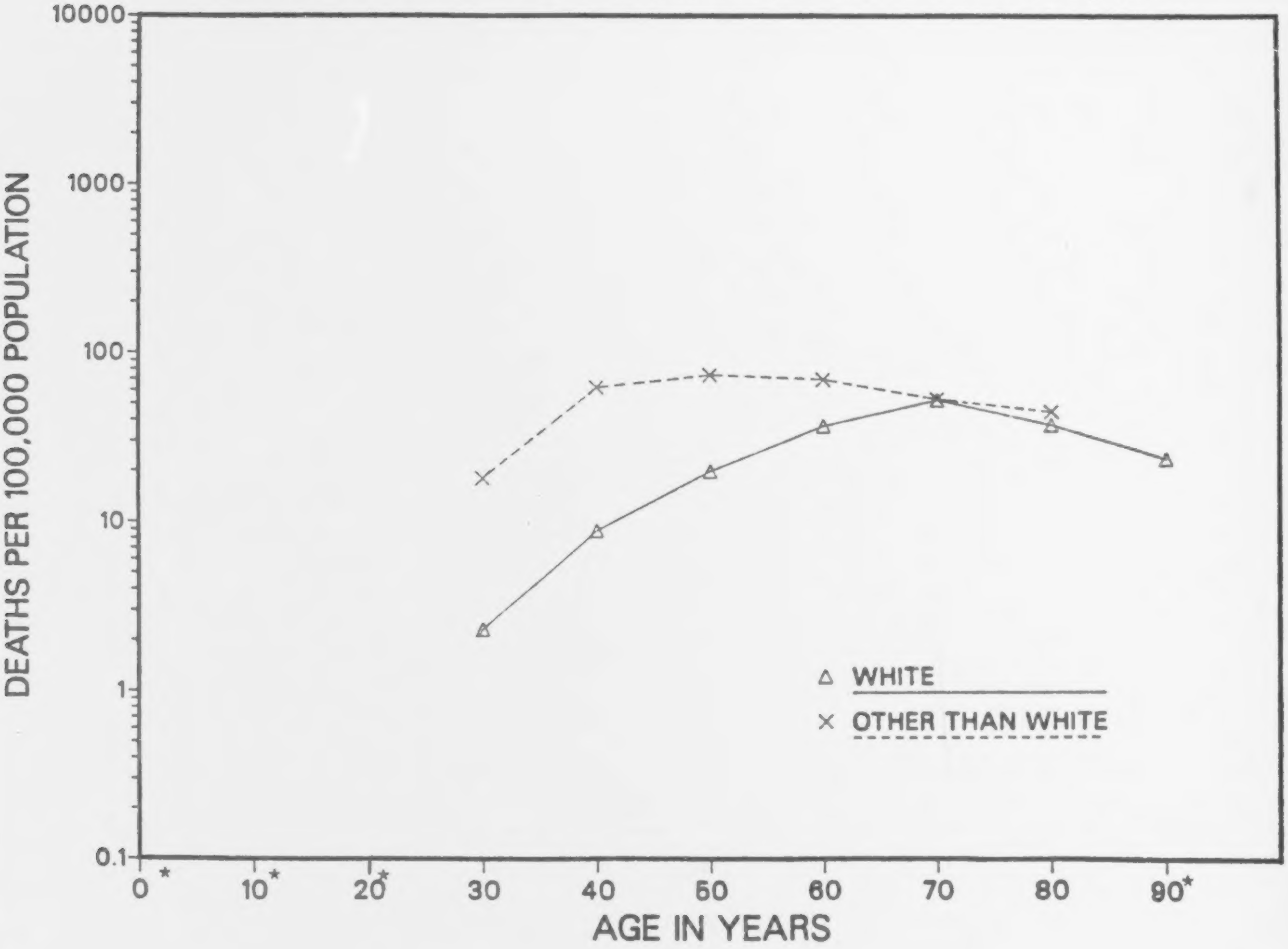
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.38
AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1985



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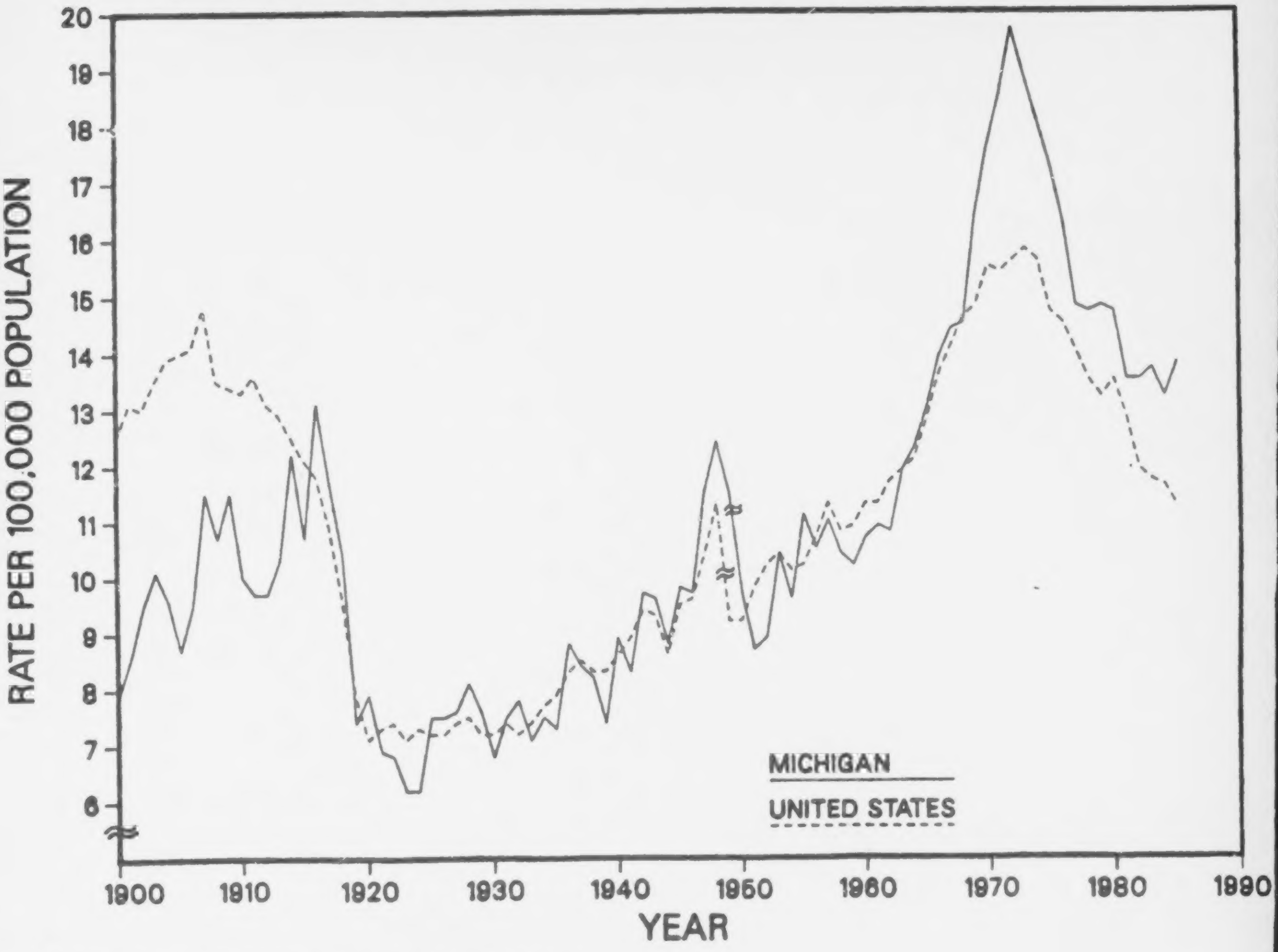
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.39
CHRONIC LIVER DISEASE AND CIRRHOSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES[2] RESIDENTS, 1900-1985[3]



[1] Prior to 1979 termed Cirrhosis of Liver.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional

[3] The comparability of cirrhosis of the liver death rates from the 5th revisions of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparabilit of cirrhosis of the liver death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration.

See Technical Notes.

Table 2.42
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALF
Mich.	1970	17.7	24.9	11.2	15.6	22.0	9.7	34.8	48.3	22.5
	1971	18.7	25.6	12.3	16.2	22.2	10.7	37.7	53.3	23.7
	1972	19.8	27.8	12.5	17.0	24.4	10.3	41.2	54.9	28.8
	1973	18.8	26.7	11.7	16.3	23.2	10.1	37.9	54.2	23.4
	1974	17.9	25.8	10.8	14.7	21.5	8.7	41.8	59.7	25.9
	1975	17.1	23.9	11.1	14.4	20.2	9.2	37.5	52.1	24.6
	1976	15.9	23.0	9.6	13.6	19.8	8.0	32.9	47.2	20.4
	1977	14.5	20.6	9.1	12.1	17.6	7.2	31.7	42.9	22.0
	1978	14.2	19.6	9.3	12.0	16.9	7.8	29.6	40.9	20.0
	1979	14.2	21.1	8.2	11.4	17.1	6.4	34.1	50.4	20.1
	1980	14.1	19.7	9.1	11.6	16.5	7.3	31.1	43.7	20.5
	1981	12.7	17.8	8.1	10.8	15.5	6.6	25.8	34.7	18.3
	1982	12.5	17.7	8.0	10.5	15.3	6.5	26.1	35.3	18.3
	1983	12.6	18.8	7.2	10.6	15.8	6.1	25.9	40.5	13.9
	1984	12.0	17.0	7.8	10.0	14.3	6.4	25.4	36.4	16.4
	1985	12.6	18.2	7.8	10.1	14.5	6.3	29.2	44.4	16.6
U.S.	1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
	1971	14.6	20.2	9.7	13.5	18.9	8.7	23.4	31.0	16.9
	1972	14.9	20.8	9.6	13.5	19.0	8.5	25.3	35.0	17.1
	1973	15.0	20.8	9.8	13.6	19.3	8.7	25.1	33.7	17.9
	1974	14.7	20.6	9.6	13.4	19.0	8.5	24.8	33.9	17.2
	1975	13.7	19.4	8.8	12.5	17.8	7.9	22.9	32.0	15.3
	1976	13.5	19.0	8.6	12.2	17.4	7.7	22.9	32.1	15.1
	1977	13.0	18.3	8.3	11.7	16.6	7.4	22.2	31.2	14.7
	1978	12.4	17.5	8.0	11.2	16.0	7.1	20.7	29.0	13.9
	1979	12.0	17.0	7.7	11.0	15.6	7.0	19.7	28.2	12.8
	1980	12.2	17.1	7.9	11.0	15.7	7.0	20.0	28.1	13.5
	1981	11.4	16.0	7.4	10.5	14.8	6.7	17.6	24.7	11.9
	1982	10.5	14.9	6.7	9.8	14.1	6.1	14.9	20.9	10.1
	1983	10.2	14.3	6.6	9.5	13.4	6.0	14.7	20.5	10.0
	1984	10.0	14.1	6.4	9.3	13.2	5.9	14.3	20.2	9.5
	1985[3]	9.6	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

been considerably higher than the comparable rates for the nation. Rates for white males in Michigan were higher than rates for white males nationally throughout the fifteen year period. Rates for white females in Michigan were higher than for their counterparts in the nation at the beginning of the decade. In recent years the rates for the two groups have been similar. In 1985 the age-adjusted rate for the total Michigan population was 31.3 percent above the provisional rate for the United States.

Cirrhosis of the liver without mention of alcohol was the most frequently reported cause of deaths due to chronic liver disease and cirrhosis in 1985, resulting in 584 deaths (Table 2.43). The second largest category was alcoholic cirrhosis of the liver with 341 deaths. There were 93 deaths attributed to other chronic nonalcoholic liver disease. Including deaths due to alcoholic cirrhosis of the liver, alcoholic fatty liver, acute alcoholic hepatitis, and unspecified alcoholic liver damage, there were 579 deaths with mention of alcohol attributed to the category of chronic liver disease and cirrhosis.

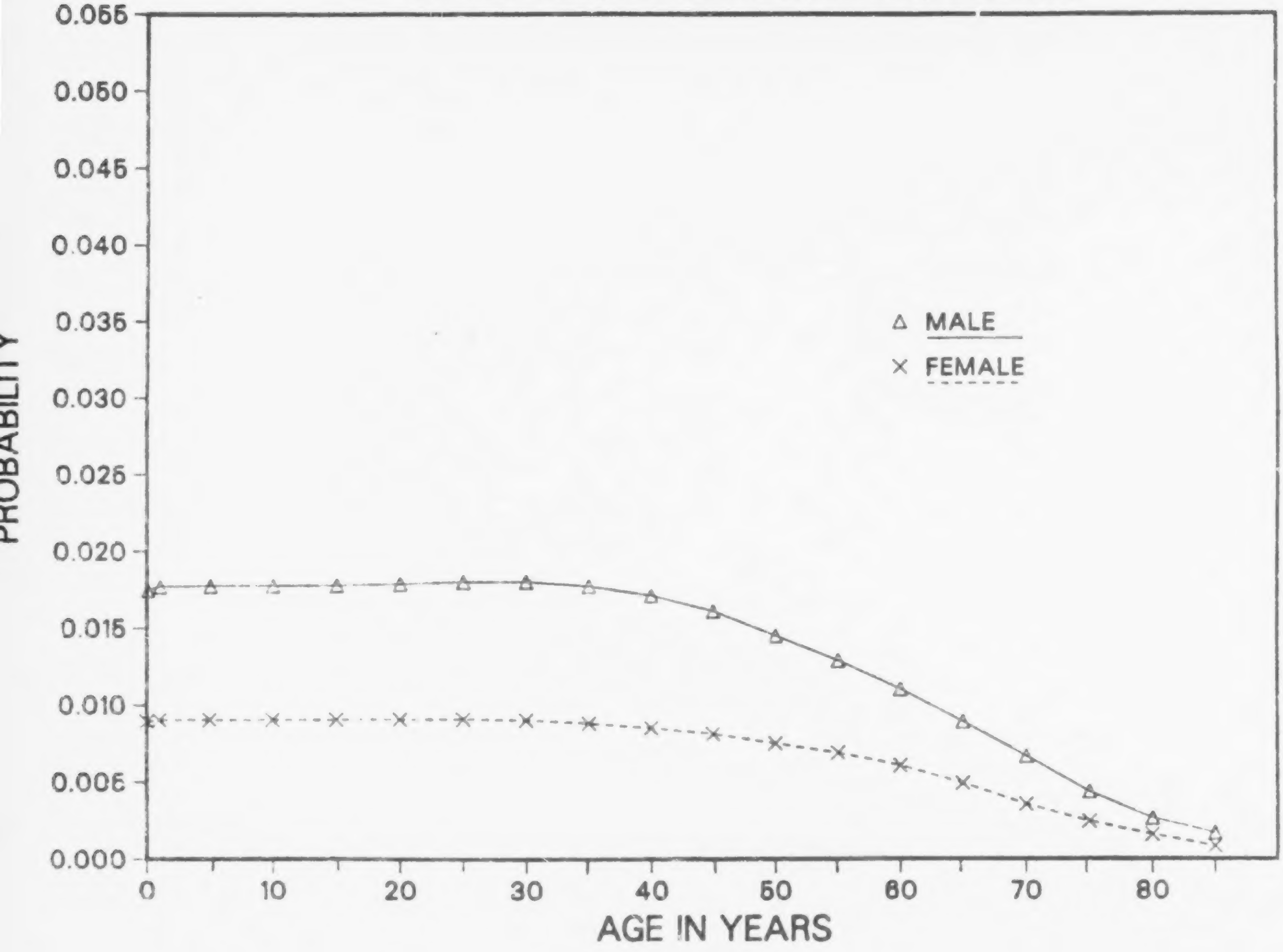
The probability of eventually dying from chronic liver disease and cirrhosis, based upon Michigan mortality data from the years 1983-1985, is displayed in Figure 2.40 by age and sex. This graph reveals that the risk for males of dying from a disease in this category is roughly double that for females. At birth, males have a probability of 0.017 of eventually dying from chronic liver disease and cirrhosis. For females the probability is 0.009. These probabilities remain nearly constant for both sexes through age 35, whereupon the threat of death due to these diseases diminishes with advancing age. By age 85 the risk is 0.002 for males and 0.001 for females.

Table 2.43
Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1985

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
571.5	Cirrhosis of Liver Without Mention of Alcohol	584	46.5
571.2	Alcoholic Cirrhosis of Liver	341	27.1
571.0	Alcoholic Fatty Liver	151	12.0
571.3	Alcoholic Liver Damage, Unspecified	60	4.8
571.4	Chronic Hepatitis	44	3.5
571.1	Acute Alcoholic Hepatitis	27	2.1
571.8	Other Chronic Nonalcoholic Liver Disease . .	20	1.6
571.6	Biliary Cirrhosis	19	1.5
571.9	Unspecified Chronic Liver Disease Without Mention of Alcohol	10	0.8
	Total	1,256	100.0

[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.40
PROBABILITY OF EVENTUALLY DYING FROM
CHRONIC LIVER DISEASE AND CIRRHOSIS
BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ATHEROSCLEROSIS

There were a total of 1,173 Michigan resident deaths attributed to atherosclerosis in 1985, making this cause the 9th leading cause of death in the state. Atherosclerosis is the term under the 9th Revision (adopted in 1979) for the category most nearly comparable to arteriosclerosis under the 8th Revision. Of the deaths due to this cause in 1985 60.9 percent were to females, while 46.8 percent of the deaths due to all causes were to females. Only 89 of the 1,173 deaths were to other than white persons. This is 7.6 percent of all atherosclerosis deaths, while 14.2 percent of all deaths were to other than white persons.

The majority of the atherosclerosis deaths were to persons of advanced ages. The median age of all deaths resulting from this disease was 86 years. The median age at death for males was 5 years lower than that for females, and the median for other than white persons was 5 years lower than that for white persons (Table 2.44).

Atherosclerosis resulted in 12.9 deaths per 100,000 Michigan residents in 1985, 2.4 percent higher than the 1984 rate of 12.6. Deaths to females from this disease were relatively more frequent than for males with crude mortality rates of 15.3 and 10.4 respectively (Table 2.45). The age-adjusted rate for males, however, was 34 percent higher than that for females. Age-specific atherosclerosis death rates rose sharply beyond age 54 for persons of both sexes. Rates for males were above those for females for all age groups where rate can be calculated (Figure 2.41).

The crude rate for deaths due to atherosclerosis for white persons was 2.2 times that for other than white persons. However, when the differing age distributions of the two groups are considered, the differential is greatly reduced (Figure 2.42). The age-adjusted rate of 5.7 for whites is 5.6 percent higher than the rate of 5.4 for other than white persons.

Inspection of arteriosclerosis death rates since 1900 is far less informative than study of the historical data for other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICD codes (see footnote of Figure 2.43). What can be seen in Figure 2.43 is a strong rise between 1900 and 1912. Rates in Michigan and the nation then stabilized and began declining. A coding revision in 1930 then breaks comparability with 1929 rates. The arteriosclerosis death rates from 1930 through 1948 show no clear direction. From 1950 through 1967 the rates for the nation held fairly stable while in Michigan the rates dropped and then returned to national levels. From 1968 through 1979 the death rates due to arteriosclerosis in Michigan were below national rates. Since 1980 the Michigan rate has exceeded the national rate. In 1985 the Michigan rate of 12.9 exceeded by 30.3 percent the provisional rate of 9.9 for the nation.

Age-adjusted atherosclerosis death rates have declined for all population groups in both Michigan and the United States since 1970 (Table 2.46). The rates for white Michigan residents were quite similar to those for the nation from 1970 through 1974. After 1974 the Michigan rates declined more slowly than the national rates. Michigan's rates for other than white persons have been stable since 1971. The Michigan rates remained below the comparable rates for the nation from 1970 through 1983 but were higher in 1984 (see Technical Notes). Rates for other than white persons were consistently lower than those for white persons in Michigan while these rates were roughly similar across the nation.

Table 2.44
Deaths Due to Atherosclerosis by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	3	2	1	3	2	1	-	-	-	-	-	-
45-49	2	-	2	1	-	1	1	-	1	-	-	-
50-54	7	3	4	6	3	3	1	-	1	-	-	-
55-59	14	10	4	14	10	4	-	-	-	-	-	-
60-64	32	21	11	25	16	9	7	5	2	-	-	-
65-69	46	29	17	40	26	14	6	3	3	-	-	-
70-74	82	46	36	71	40	31	10	6	4	1	-	1
75-79	129	65	64	112	55	57	17	10	7	-	-	-
80-84	209	86	123	189	77	112	20	9	11	-	-	-
85-89	274	94	180	263	87	176	10	6	4	1	1	-
90+	375	103	272	358	97	261	17	6	11	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1173	459	714	1082	413	669	89	45	44	2	1	1
Median Age At Last Birthday	86	82	87	86	82	87	81	78	81	79	87	71

Table 2.45
Atherosclerosis Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	12.9	10.4	15.3	14.1	11.0	17.0	6.5	6.9	6.1
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	*	*	*	*	*	*	*	*	*
35-44 Years	*	*	*	*	*	*	*	*	*
45-54 Years	1.0	*	1.4	0.9	*	*	*	*	*
55-64 Years	5.2	7.5	3.2	5.0	7.1	3.1	6.9	10.7	*
65-74 Years	22.3	30.1	16.3	21.9	29.7	15.9	25.5	33.0	19.7
75-84 Years	119.7	146.0	104.5	117.9	142.6	103.8	137.0	174.7	111.6
85 Years and Over	703.3	708.5	701.1	728.5	722.4	731.1	391.8	546.2	319.5
Age-Adjusted Rate[2]	5.7	6.7	5.0	5.7	6.6	5.0	5.4	7.0	4.4

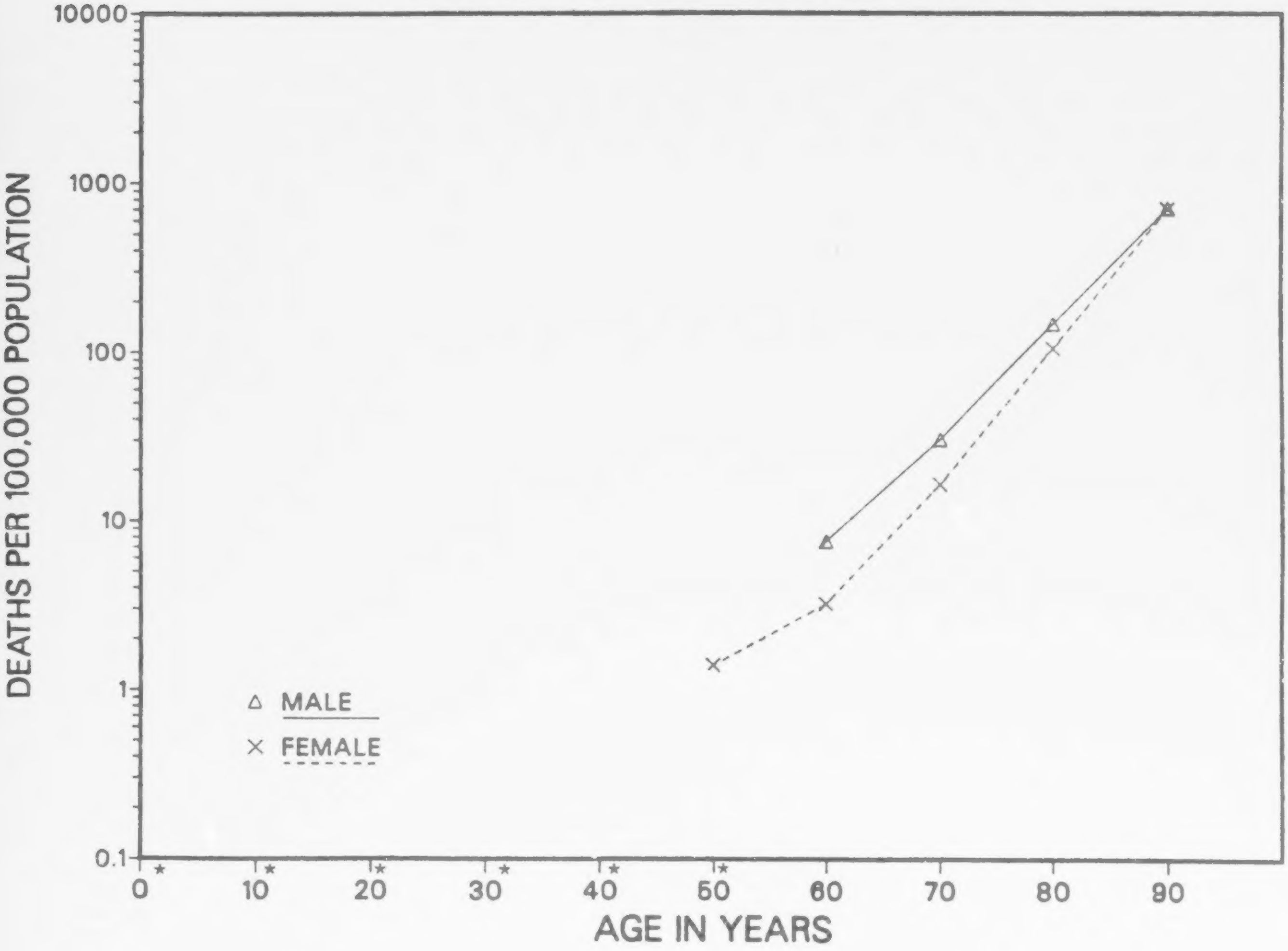
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.41
AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



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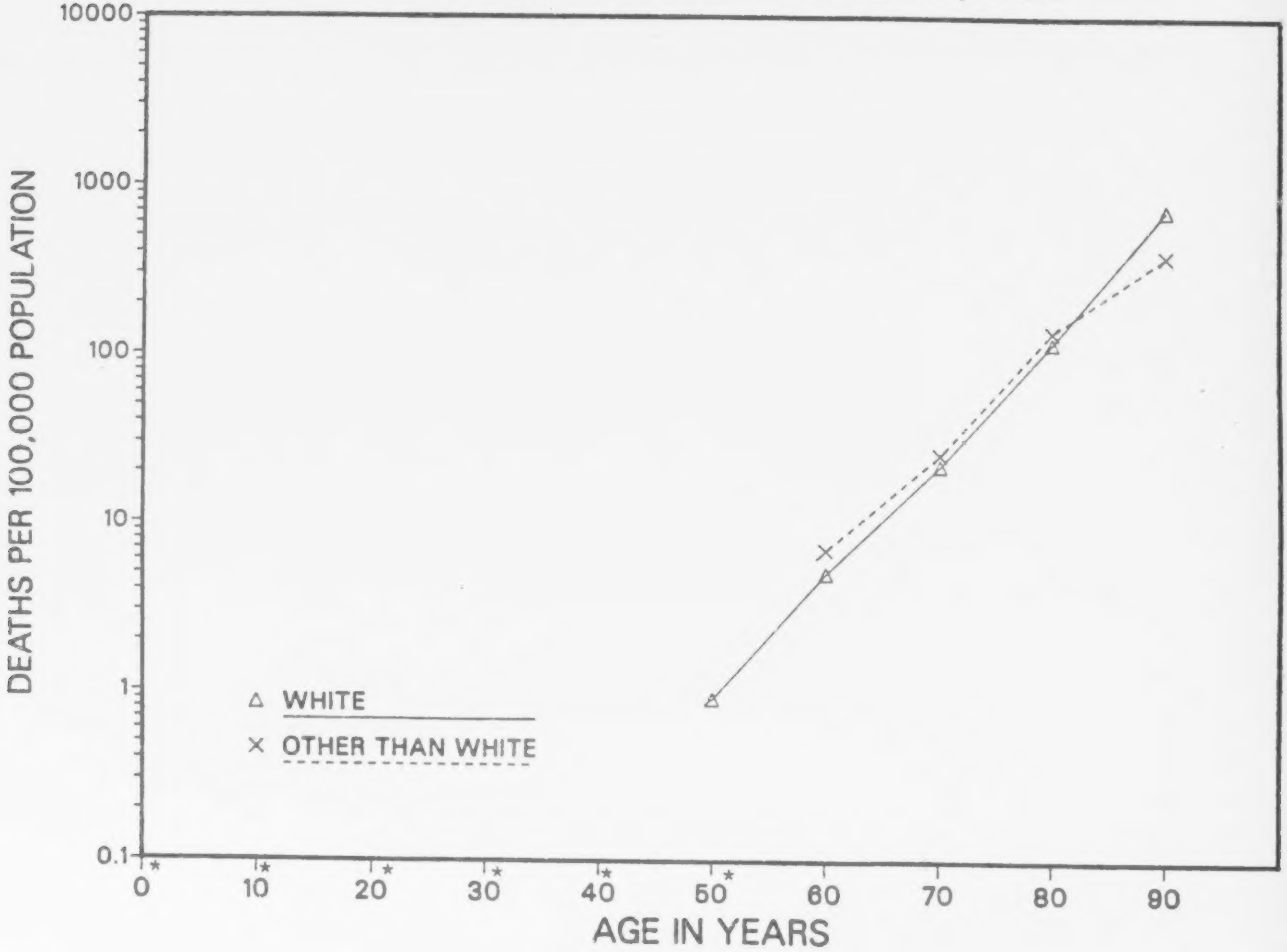
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.42
AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1985



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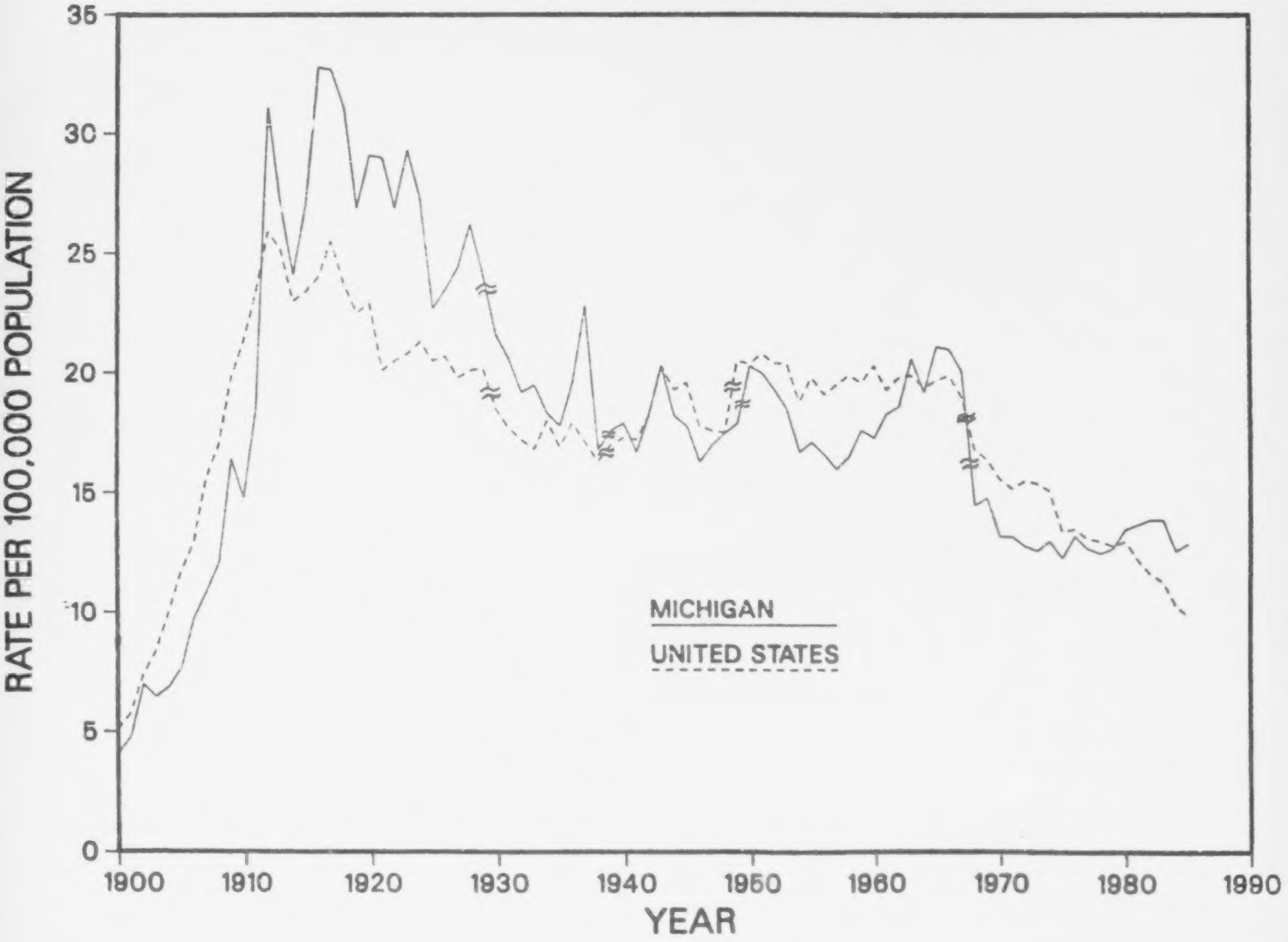
[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.43
ATHEROSCLEROSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES[2] RESIDENTS, 1900-1985[3]



[1] Prior to 1979 termed Arteriosclerosis.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.United States data for 1985 is provisional.

[3] Although Michigan and United States atherosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949, and 1968 revisions. Analysis of atherosclerosis death rates over the time period 1900-1985 requires detailed study to maintain comparability.

Table 2.46
Age-Adjusted Atherosclerosis Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	8.1	8.9	7.4	8.2	9.1	7.5	6.2	6.3	5.9
	1971	7.9	9.0	7.1	8.2	9.3	7.3	4.5	4.6	4.4
	1972	7.4	8.7	6.4	7.6	9.0	6.6	4.1	4.1	4.0
	1973	7.2	8.4	6.3	7.5	8.8	6.4	4.0	3.4	4.4
	1974	7.3	8.1	6.7	7.6	8.5	6.9	4.1	4.0	4.1
	1975	6.7	7.5	6.0	6.9	7.7	6.2	4.2	5.0	3.4
	1976	7.0	8.4	6.0	7.3	8.8	6.2	3.0	3.6	2.5
	1977	6.6	7.5	6.0	6.9	7.8	6.2	3.5	3.5	3.6
	1978	6.4	7.2	5.8	6.6	7.4	5.9	4.0	4.6	3.6
	1979	6.3	7.1	5.7	6.3	7.2	5.8	5.3	6.3	4.5
	1980	6.6	7.5	6.0	6.7	7.7	6.0	5.4	5.7	5.2
	1981	6.3	7.2	5.7	6.6	7.5	6.0	3.4	4.0	3.0
	1982	6.4	7.3	5.7	6.6	7.6	5.9	4.1	4.7	3.4
	1983	6.2	6.7	5.8	6.4	7.0	6.0	4.1	4.4	3.9
	1984	5.7	6.8	5.0	5.8	6.9	5.1	4.6	5.5	4.0
	1985	5.7	6.7	5.0	5.7	6.6	5.0	5.4	7.0	4.4
U.S.	1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
	1971	8.1	9.2	7.4	8.1	9.3	7.3	7.8	8.3	7.3
	1972	8.2	9.3	7.4	8.1	9.2	7.3	8.4	9.6	7.4
	1973	7.9	8.9	7.2	7.9	8.9	7.2	7.7	8.5	7.1
	1974	7.5	8.5	6.8	7.5	8.6	6.8	7.3	8.2	6.5
	1975	6.5	7.4	5.8	6.5	7.4	5.9	6.1	7.0	5.3
	1976	6.3	7.2	5.7	6.4	7.3	5.7	5.7	6.3	5.2
	1977	6.1	7.0	5.4	6.1	7.1	5.4	5.6	6.5	5.0
	1978	5.9	6.8	5.2	5.9	6.8	5.3	5.5	6.3	4.9
	1979	5.7	6.5	5.0	5.6	6.5	5.0	5.6	6.3	5.1
	1980	5.7	6.6	5.0	5.6	6.5	5.0	5.9	6.8	5.2
	1981	5.2	6.0	4.6	5.2	6.0	4.5	5.2	5.8	4.7
	1982	4.8	5.7	4.2	4.8	5.7	4.2	4.6	5.4	4.0
	1983	4.6	5.3	4.1	4.6	5.3	4.1	4.3	5.1	3.7
	1984	4.2	4.8	3.7	4.2	4.8	3.7	3.8	4.4	3.3
	1985[4]	4.0	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 1.0649. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

[4] Provisional.

Nearly all atherosclerosis deaths are reported as generalized and/or unspecified as to type. Only 42 of the 1,173 deaths were in other classifications. Of these, 38 were attributed to atherosclerosis of arteries of the extremities (Table 2.47).

The 1983 through 1985 mortality data for Michigan indicate that females are more likely to eventually die from atherosclerosis than males. At birth, the likelihood for females is 0.025, while for males it is 0.013. These probabilities rise slowly through age 55 and increase rapidly beyond that age. By age 85, the probability of eventually dying from atherosclerosis is 0.047 for females and 0.037 for males (Figure 2.44).

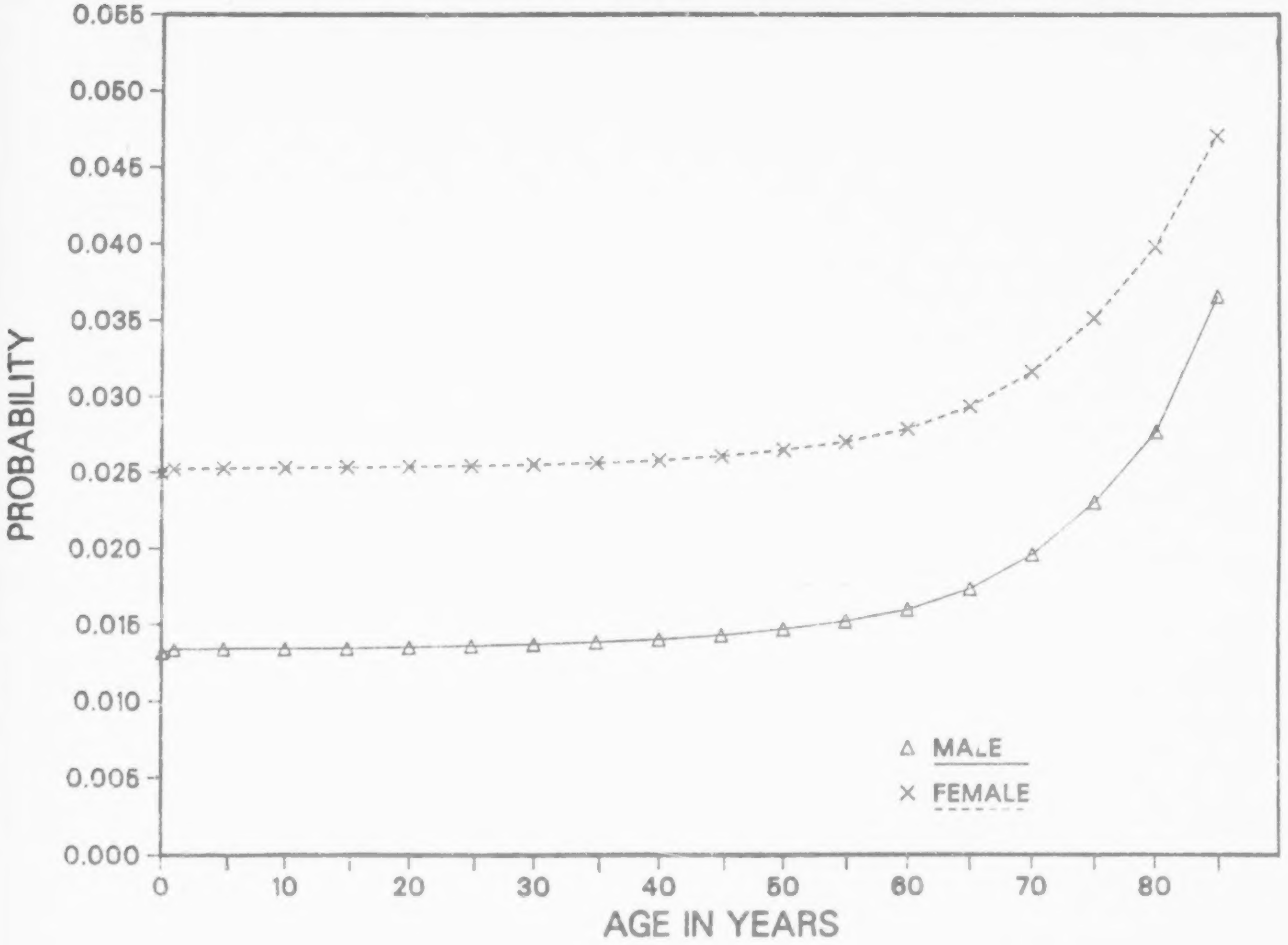
Table 2.47
Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1985

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
440.9	Generalized and Unspecified Atherosclerosis	1,131	96.4
440.2	Atherosclerosis of Arteries of the Extremities	38	3.2
440.1	Atherosclerosis of Renal Artery	2	0.2
440.0	Atherosclerosis of Aorta	2	0.2
440.8	Atherosclerosis of Other Specified Arteries .	-	-
	Total	1,173	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.44

PROBABILITY OF EVENTUALLY DYING FROM ATHEROSCLEROSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

SUICIDE

There were a total of 1,088 suicide deaths in 1985, making suicide the 10th leading cause of death. Of the deaths resulting from suicide 81.8 percent were males. Of all suicide deaths 89.8 percent were to white persons.

Fifty-one percent of all suicide deaths occurred at or below the age of 39. The median age at death for males was 37 years, 8 years below that for females. The median ages at death for white males and females were 38 and 46 years respectively. For other than white males and females the median ages at death were 31 and 34 years respectively. There were 182 suicide deaths of white persons 65 years of age or older. This is 18.6 percent of all suicide deaths of white persons. Among persons of other races there were 6 suicide deaths at age 65 or over or 5.5 percent of the total (Table 2.48).

The crude suicide death rate in 1985 was 12.0 per 100,000 population. The crude rate for males (20.1) was 4.8 times that for females (4.2). Age-specific rates for males were higher than female rates in all age groups (Table 2.49 and Figure 2.45). While suicide rates for males were highest among men from 45-54 years and those aged 65 or older, the rates for females were highest from age 45-54 and age 75-84. The greatest relative differentials by sex were for the ages less than 35 and ages 65 and over where the rates for males were over five times that of females.

The crude suicide death rate for the white population was 58.8 percent higher than that for the other than white population. The age-adjusted rate for white persons was 37.2 percent higher than that for other than white persons. Age-specific rates by race from Table 2.49 are displayed in Figure 2.46. Age-specific rates for white persons were greater than those for other than white persons in all categories with sufficient events to calculate rates.

There is strong similarity in both the trend and magnitude of suicide death rates for Michigan and the United States in this century (Figure 2.47). There were two complete cycles of rising then falling rates in the period 1900 through 1944. The rates then held fairly stable for about 20 years. Between 1964 and 1977 the suicide death rate increased by 39 percent in Michigan, reaching 14.0, the highest rate since 1938. The highest rate during this century for Michigan was 18.8 in 1931, while the lowest was the rate of 8.8 in 1900. For the nation high and low rates were observed in 1932 (17.4) and in 1957 (9.8). In 1985 the provisional rate for the United States was 12.0, equal to Michigan's rate.

Age-adjusted suicide death rates by race and sex for Michigan and the United States are presented in Table 2.50. For white females in Michigan the age-adjusted rates for suicide remained quite stable from 1970 through 1977, and have since declined, while those for white males increased between 1970 and 1977, and held below that level through 1985. The rates for other than white persons rose between 1970 and 1980 and have remained below the 1980 level through 1985. The rates for other than white persons were consistently below those of their white counterparts during the fifteen year period. Rates for the nation were more stable. For white and other than white females the rates are slowly declining. The rate for white males peaked in 1977, and the rate for other than white males increased by 23 percent between 1970 and 1979. The rates in Michigan for the other than white population were significantly higher than those of the nation. Rates in Michigan for the white population groups were similar to those of the nation. The age-adjusted rate for the total population of Michigan was at or above the comparable national rate fourteen out of sixteen years from 1970 through 1985.

Table 2.48
Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-		-	-	-
1-4	-	-		-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	14	12	2	11	10	1	3	2	1	-	-	-
15-19	93	79	14	81	67	14	12	12	-	-	-	-
20-24	115	103	12	101	91	10	14	12	2	-	-	-
25-29	121	103	18	108	91	17	13	12	1	-	-	-
30-34	122	103	19	100	85	15	22	18	4	-	-	-
35-39	91	75	16	78	64	14	13	11	2	-	-	-
40-44	72	57	15	64	49	15	8	8	-	-	-	-
45-49	76	59	17	67	50	17	9	9	-	-	-	-
50-54	76	57	19	69	52	17	7	5	2	-	-	-
55-59	65	47	18	64	47	17	1	-	1	-	-	-
60-64	54	40	14	52	39	13	2	1	1	-	-	-
65-69	45	31	14	43	29	14	1	1	-	1	1	-
70-74	52	46	6	49	43	6	3	3	-	-	-	-
75-79	43	33	10	43	33	10	-	-	-	-	-	-
80-84	30	27	3	28	25	3	2	2	-	-	-	-
85-89	12	12	-	12	12	-	-	-	-	-	-	-
90+	7	6	1	7	6	1	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1088	890	198	977	793	184	110	96	14	1	1	-
Median Age At Last Birthday	39	37	45	40	38	46	31	31	34	66	66	-

Table 2.49
Suicide Death Rates by Age, Race, and Sex[1], Michigan Residents, 1985

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	12.0	20.1	4.2	12.7	21.0	4.7	8.0	14.8	1.9
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	0.8	1.3	*	0.8	1.4	*	*	*	*
15-24 Years	11.4	19.8	2.9	11.8	20.1	3.2	9.3	17.8	*
25-34 Years	14.7	25.3	4.4	14.9	25.2	4.6	13.7	25.8	3.6
35-44 Years	16.3	26.8	6.1	16.4	26.3	6.6	15.5	30.3	*
45-54 Years	17.6	27.7	8.1	18.1	27.7	8.9	14.3	27.9	*
55-64 Years	13.5	21.0	6.8	14.8	23.4	7.2	*	*	*
65-74 Years	16.9	30.9	6.1	18.2	32.9	6.9	*	*	*
75-84 Years	25.9	58.0	7.3	27.8	62.7	8.0	*	*	*
85 Years and Over	20.6	64.7	*	22.3	70.3	*	*	*	*
Age-Adjusted Rate[2]	11.4	19.4	4.1	11.8	19.7	4.4	8.6	16.4	2.0

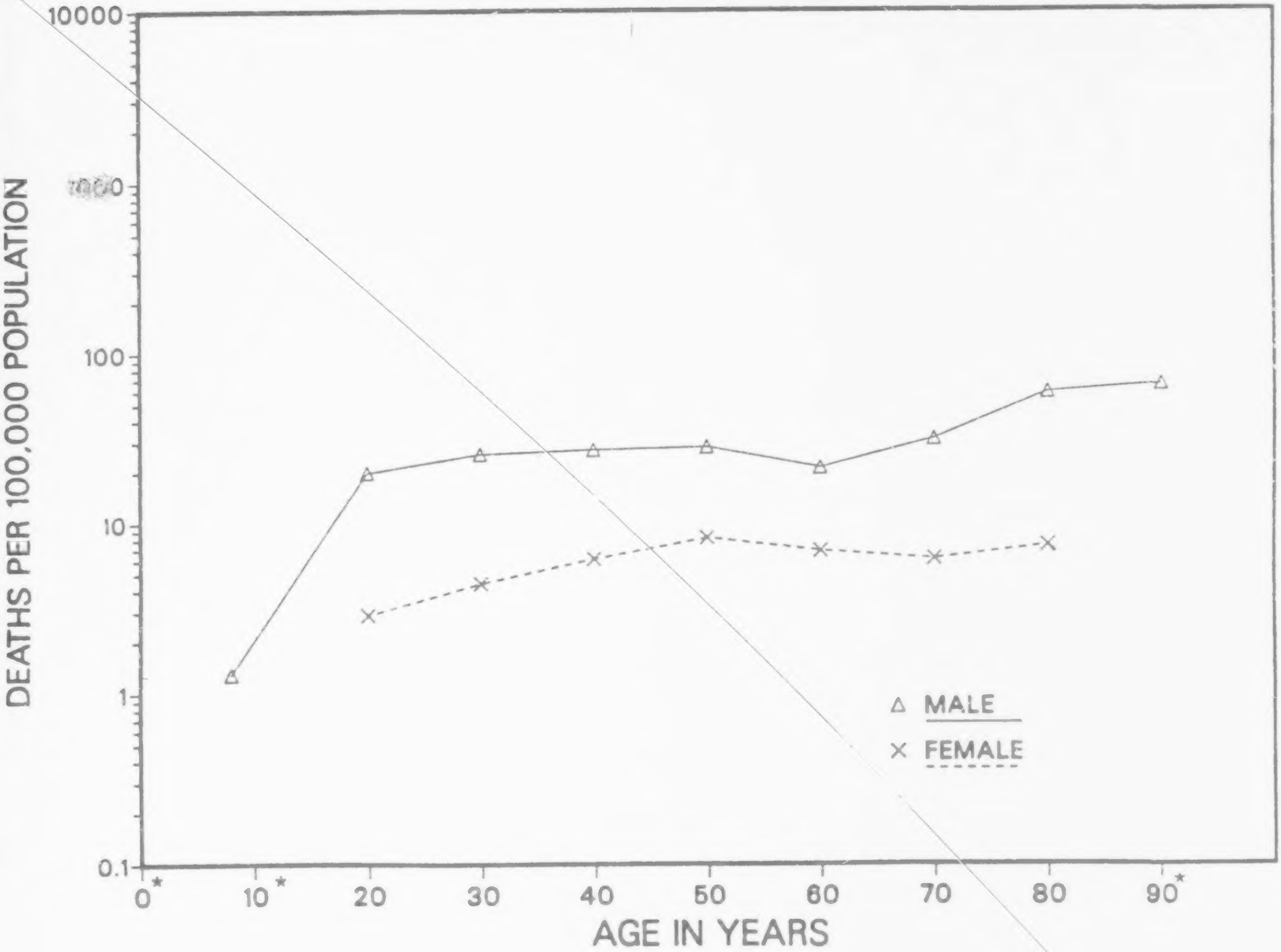
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

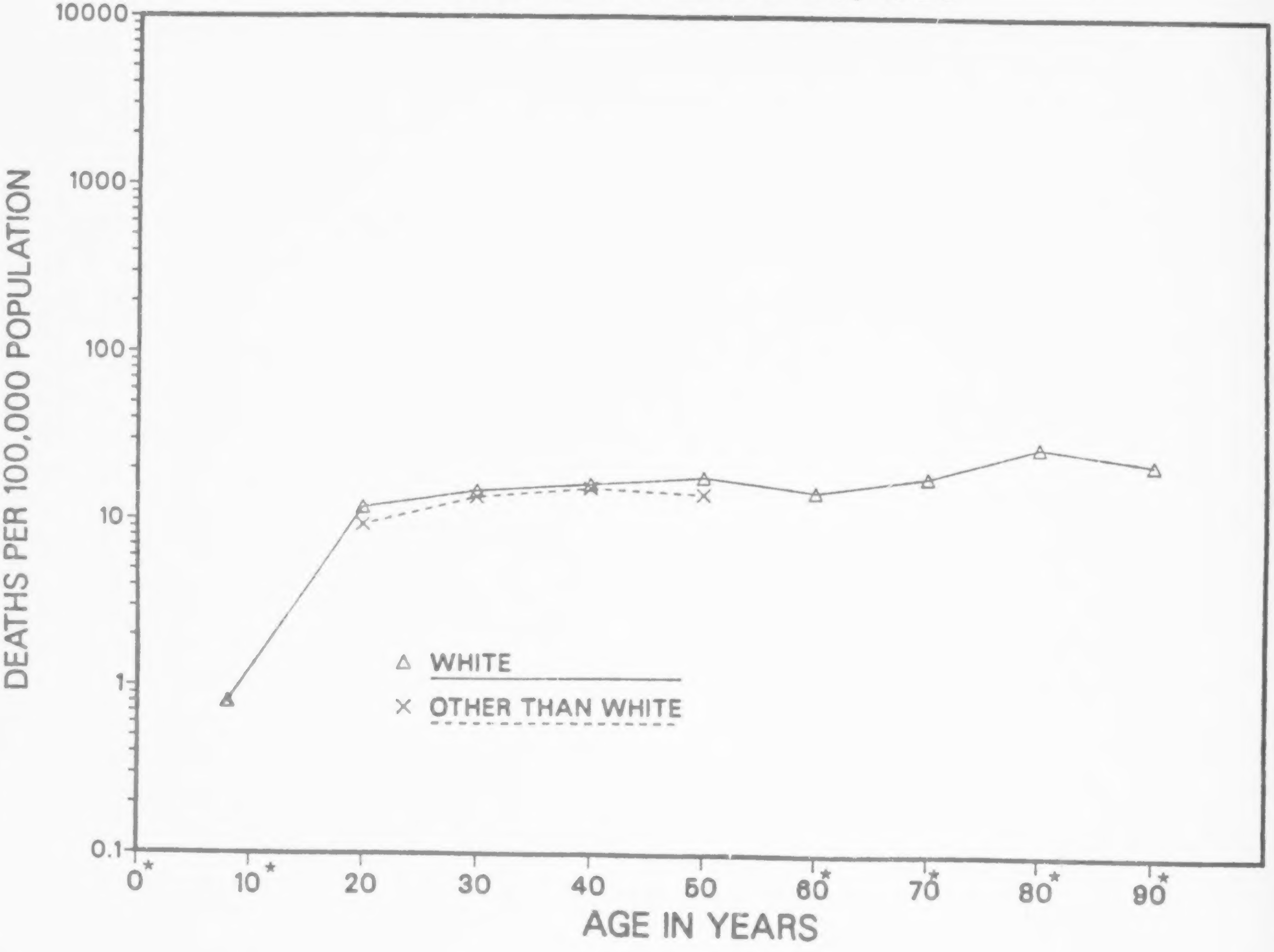
FIGURE 2.45
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

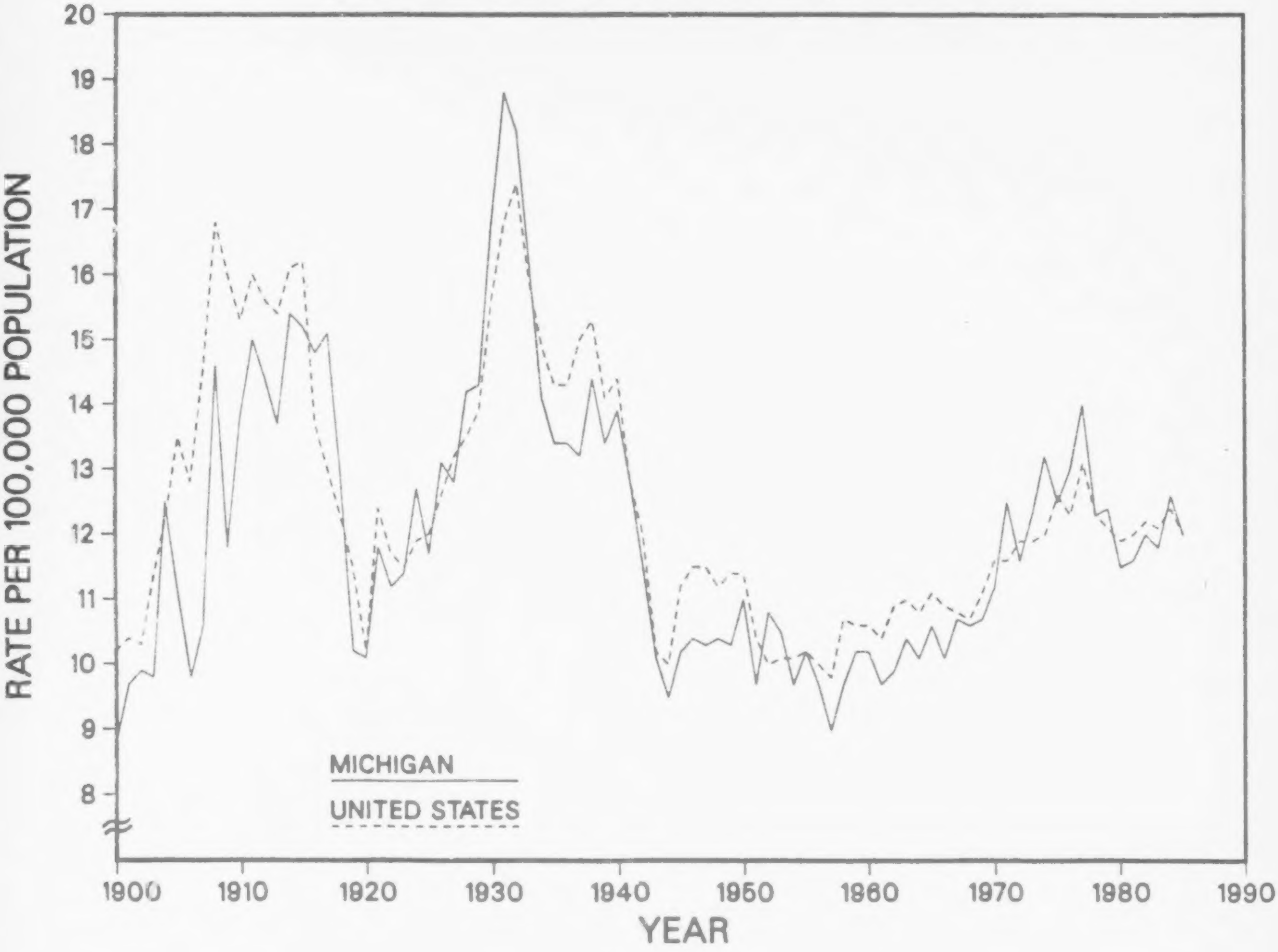
FIGURE 2.46
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1985



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.47
SUICIDE DEATH RATES, MICHIGAN AND UNITED STATES[1] RESIDENTS, 1900-1985[2]



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[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1985. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration. United States data for 1985 is provisional.

[2] Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.50
Age-Adjusted Suicide Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1985

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	11.9	17.3	6.9	12.4	17.9	7.3	7.4	11.8	3.4
	1971	13.0	18.2	8.4	13.2	18.4	8.6	10.7	16.0	6.1
	1972	12.1	17.9	6.9	12.6	18.4	7.2	8.3	12.9	4.3
	1973	12.8	19.3	6.7	13.2	19.8	7.0	9.6	15.8	4.2
	1974	13.6	19.9	8.0	14.2	20.6	8.3	9.2	13.8	5.3
	1975	12.9	19.4	6.8	13.2	19.8	7.1	9.8	15.7	4.7
	1976	13.2	19.8	7.0	13.5	20.2	7.2	10.6	16.7	5.3
	1977	13.9	21.4	7.1	14.4	22.0	7.4	10.0	16.2	4.7
	1978	12.2	18.8	6.2	12.5	19.2	6.2	10.2	15.5	5.8
	1979	12.2	18.6	6.3	12.3	18.7	6.4	11.4	18.0	5.6
	1980	11.2	17.7	5.2	11.7	18.2	5.6	7.9	13.7	2.9
	1981	11.3	17.4	5.8	11.9	18.0	5.3	7.3	13.1	2.3
	1982	11.6	18.3	5.4	12.2	19.0	5.8	7.4	12.6	2.9
	1983	11.4	18.2	5.2	11.8	18.5	5.5	8.8	16.1	2.7
	1984	12.0	18.8	5.8	12.6	19.7	6.1	8.1	12.6	4.2
	1985	11.4	19.4	4.1	11.5	19.7	4.4	8.6	16.4	2.0
U.S.	1970	11.8	17.3	6.8	12.4	18.2	7.2	6.5	10.3	3.3
	1971	11.8	17.2	7.0	12.4	18.0	7.4	6.7	10.1	3.8
	1972	12.1	17.8	6.9	12.6	18.4	7.3	7.4	11.8	3.6
	1973	11.9	17.8	6.6	12.5	18.6	7.0	7.1	11.5	3.3
	1974	12.1	18.1	6.6	12.7	18.9	7.0	7.1	11.6	3.2
	1975	12.5	18.8	6.8	13.2	19.6	7.3	7.4	11.9	3.5
	1976	12.1	18.3	6.6	12.7	19.0	7.0	7.4	12.1	3.4
	1977	12.8	19.4	6.7	13.5	20.3	7.1	7.6	12.2	3.6
	1978	11.9	18.2	6.1	12.5	19.0	6.6	7.2	11.9	3.2
	1979	11.7	17.9	5.9	12.2	18.6	6.3	7.7	12.7	3.3
	1980	11.4	18.0	5.4	12.1	18.9	5.7	6.7	11.3	2.8
	1981	11.5	18.0	5.7	12.2	18.9	6.0	6.8	11.2	3.0
	1982	11.6	18.3	5.4	12.4	13.4	5.8	6.4	10.8	2.6
	1983	11.4	18.2	5.2	12.2	19.3	5.6	6.4	10.7	2.6
	1984	11.6	18.7	5.2	12.4	19.7	5.6	6.6	11.2	2.7
	1985[3]	11.2	---	---	---	---	---	---	---	---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] Provisional.

Suicides in Michigan were predominantly the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms caused 584 deaths in 1985. Hanging, strangulation and suffocation resulted in 204 deaths. Self-inflicted poisoning by gases and vapors resulted in 135 deaths. There were 99 deaths due to poisoning by drugs, medicaments and biologicals. Together these four types of suicide accounted for 93.9 percent of all suicide deaths to Michigan residents in 1985 (Table 2.51).

Using the Michigan mortality experience of 1983 through 1985, the chance of a male eventually dying from suicide is 0.015 at birth. The risk for females is 0.004. These probabilities hold relatively constant through age 20 then taper slowly with advancing age (Figure 2.48).

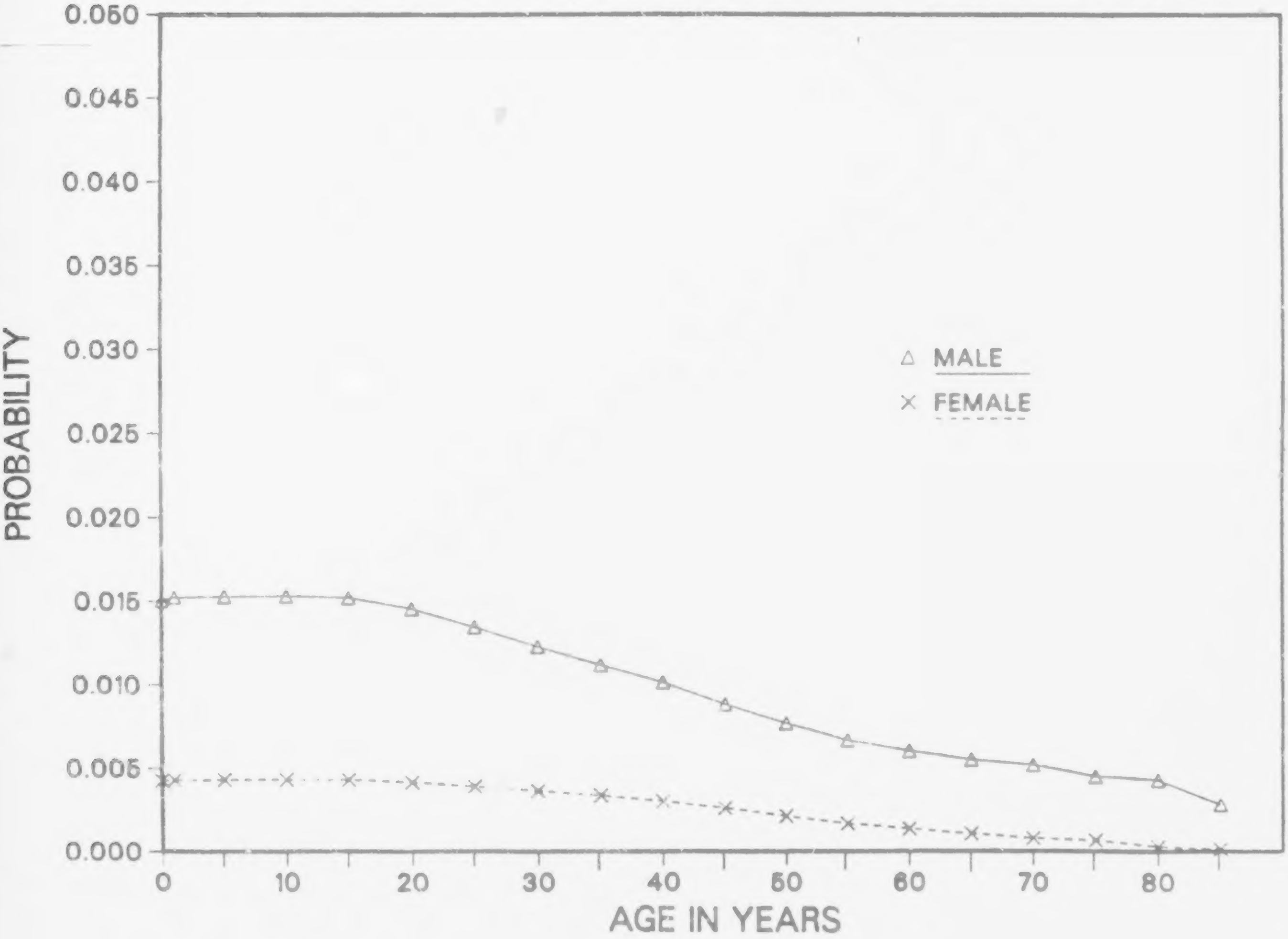
Table 2.51
Deaths Due to Suicide by Method, Michigan Residents, 1985

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
269	Suicide by All Other and Unspecified Firearms	573	52.7
267	Suicide by Hanging, Strangulation, and Suffocation	204	18.8
266	Suicide by Gases and Vapors	135	12.4
264	Suicide by Drugs, Medicaments, and Biologicals	99	9.1
270	Suicide by All Other Means and Late Effects of Self-Inflicted Injury	55	5.1
265	Suicide by Other Solid or Liquid Substances	11	1.0
268	Suicide by Handguns	11	1.0
	Total	1,088	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO

FIGURE 2.48

PROBABILITY OF EVENTUALLY DYING FROM SUICIDE BY AGE AND SEX, MICHIGAN RESIDENTS, 1983-1985[1]



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[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following table relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1983 through 1985.

DISEASE CATEGORY	PROBABILITY AT BIRTH OF EVENTUAL DEATH DUE TO CONDITION FOR:	
	Males	Females
Diseases of the Heart	.407	.434
Malignant Neoplasms	.224	.193
Cerebrovascular Diseases	.062	.101
Accidents and Adverse Effects	.037	.021
Chronic Obstructive Pulmonary Diseases and Allied Conditions	.044	.024
Pneumonia and Influenza	.030	.033
Diabetes Mellitus	.015	.023
Chronic Liver Disease and Cirrhosis	.017	.009
Atherosclerosis	.013	.025
Suicide	.015	.004
All Other Causes	.136	.135
Total	1.000	1.000

The 1983 through 1985 data would indicate that 86.4 percent of all males and 86.5 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death from heart disease, cerebrovascular disease, pneumonia and influenza, diabetes mellitus, and atherosclerosis than do males. At the same time, males are more likely to die from cancer, accidents, chronic obstructive pulmonary diseases and allied conditions, chronic liver disease and cirrhosis, and suicide.

Related to the probability at birth of eventual death due to a given cause is the hypothetical gain in life expectancy that would result if a given cause of death were eliminated. Based on 1983-1985 mortality data, the average number of years of life gained by eliminating deaths due to a major cause is given in the table that follows. Deaths in infancy from all causes are added for comparative purposes.

DISEASE CATEGORY ELIMINATED	YEARS GAINED IN LIFE EXPECTANCY FOR:	
	Males	Females
Diseases of the Heart	4.72	3.40
Malignant Neoplasms	2.87	2.90
Cerebrovascular Diseases	0.51	0.67
Accidents and Adverse Effects	1.07	0.48
Chronic Obstructive Pulmonary Diseases and Allied Conditions	0.38	0.27
Pneumonia and Influenza	0.22	0.18
Diabetes Mellitus	0.17	0.24
Atherosclerosis	0.06	0.08
Chronic Liver Disease and Cirrhosis	0.33	0.19
Suicide	0.41	0.14
All Causes of Infant Mortality	0.93	0.81

The largest gains in life expectancy would result from the elimination of heart disease and cancer, the two leading causes of death. Considering the number of deaths involved, relatively large gains in life expectancy would result from the elimination of infant mortality, accidents, and suicide. Eliminating deaths in the younger age groups, where many of the deaths from these causes occur, has a greater impact on the potential number of years of life to be gained than eliminating deaths in the older age groups.

INFANT DEATHS

Of the 78,635 deaths occurring to Michigan residents in 1985, 1,575 occurred to individuals less than one year of age. The number of infant deaths declined steadily each year from 1958 through 1985, with the exception of two years when it rose, 1970 and 1984 and one year when the number held steady, 1981. Since 1970 the frequency of infant deaths has declined by 54.9 percent when there were 3,492 such deaths (Table 2.52). Nationally, the provisional number of infant deaths in 1985 was 39,500. This was 47.1 percent below the number in 1970.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means that about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), and to less than 50 by 1937 (47.8). During the 1940's the Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in the rate slowed considerably in the 1950's and 1960's. It was not until 1971 that the rate dropped below 20 to 19.5. The rate of decline between 1970 and 1980 compares favorably with the rate of decline observed before 1950. The infant death rate for Michigan rose in 1981 for the first such increase since 1970. This rate then declined each year between 1982 and 1985. In 1985, the Michigan infant mortality rate was 11.4 (Figure 2.49).

During the period 1915-1928, the rate for Michigan was above that for the United States 9 of 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below the national statistic. From 1970 through 1975 the infant mortality rate in Michigan was slightly higher than the rate for the nation. From 1976 through 1980 the rates for the state and nation were similar. Since 1980 the rate for Michigan has been 5 to 11 percent above the national rate. The provisional rate for the United States in 1985 was 10.6.

Table 2.53 shows the numbers of infant deaths and infant death rates by age at death for the period 1975-1985. The number of infants that died during the first day of life in 1985 (697) is greater than the number of deaths of infants aged 7-364 days (661). In 1985 68.0 percent of all infant deaths occurred within the first four weeks of life and 58.0 percent occurred in the first week. These percentages were 70.9 and 59.7 percent in 1975. A review of Table 2.53 reveals that the 30.7 percent decline in the infant mortality rate since 1975 stems largely from reductions in the rate of death for those less than 7 days of age. There are 5.05 fewer infant deaths per 1000 live births in 1985 than in 1975. There were 1.34 and 1.87 fewer infants deaths of age under 1 day of life and 1 to 6 days per 1,000 live births in 1985 than in 1975. They are 64 percent of the reduction. The death rate for infants during their first day of life has declined 21.0 percent since 1975. The rate decreased between 1975 and 1978 and has remained fairly stable since 1978. The death rate for ages 1-6 days has declined steadily by 54.4 percent between 1975 and 1985. In contrast, the death rate for infants aged 7-27 days decreased 38.0 percent below the 1975 level. The death rate for infants aged 28-364 days have generally decreased between 1975 and 1985. In 1985 the death rate for infants aged 28-364 days was 3.65, which is 23.8 percent below the comparable rate for 1975.

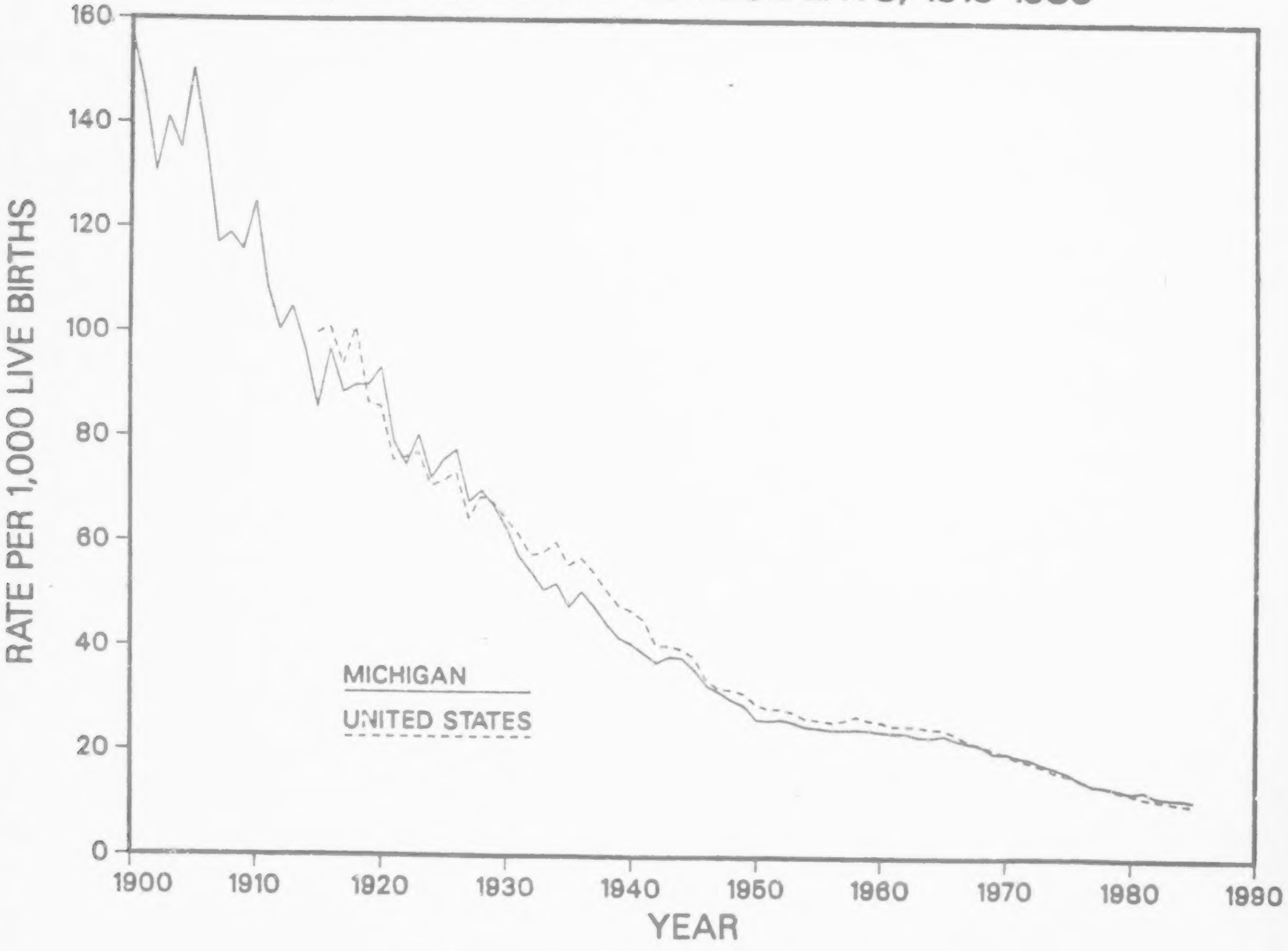
Infant mortality rates have varied considerably by race. Rates for white and other than white infants since 1950 are graphically displayed in Figure 2.50. Rates for other than white infants were higher throughout the period. Although the rates for both race groups have declined, those for white infants have decreased by a relatively larger amount. As a result, the racial differential in infant mortality rates has increased since

Table 2.52
Infant Deaths and Infant Mortality Rates, Michigan and United States[1] Residents, 1970-1985

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,975	14.1	1977	1,945	14.1
45,945	13.8	1978	1,931	13.9
45,665	13.1	1979	1,921	13.3
45,526	12.6	1980	1,851	12.8
43,305	11.9	1981	1,851	13.2
42,401	11.5	1982	1,672	12.1
40,627	11.2	1983	1,573	11.8
39,580	10.8	1984	1,595	11.7
39,500Pr.	10.6Pr.	1985	1,575	11.4

[1] United States data for 1985 are provisional.

FIGURE 2.49
INFANT MORTALITY RATES, MICHIGAN RESIDENTS, 1900-1985 AND UNITED STATES[1] RESIDENTS, 1915-1985

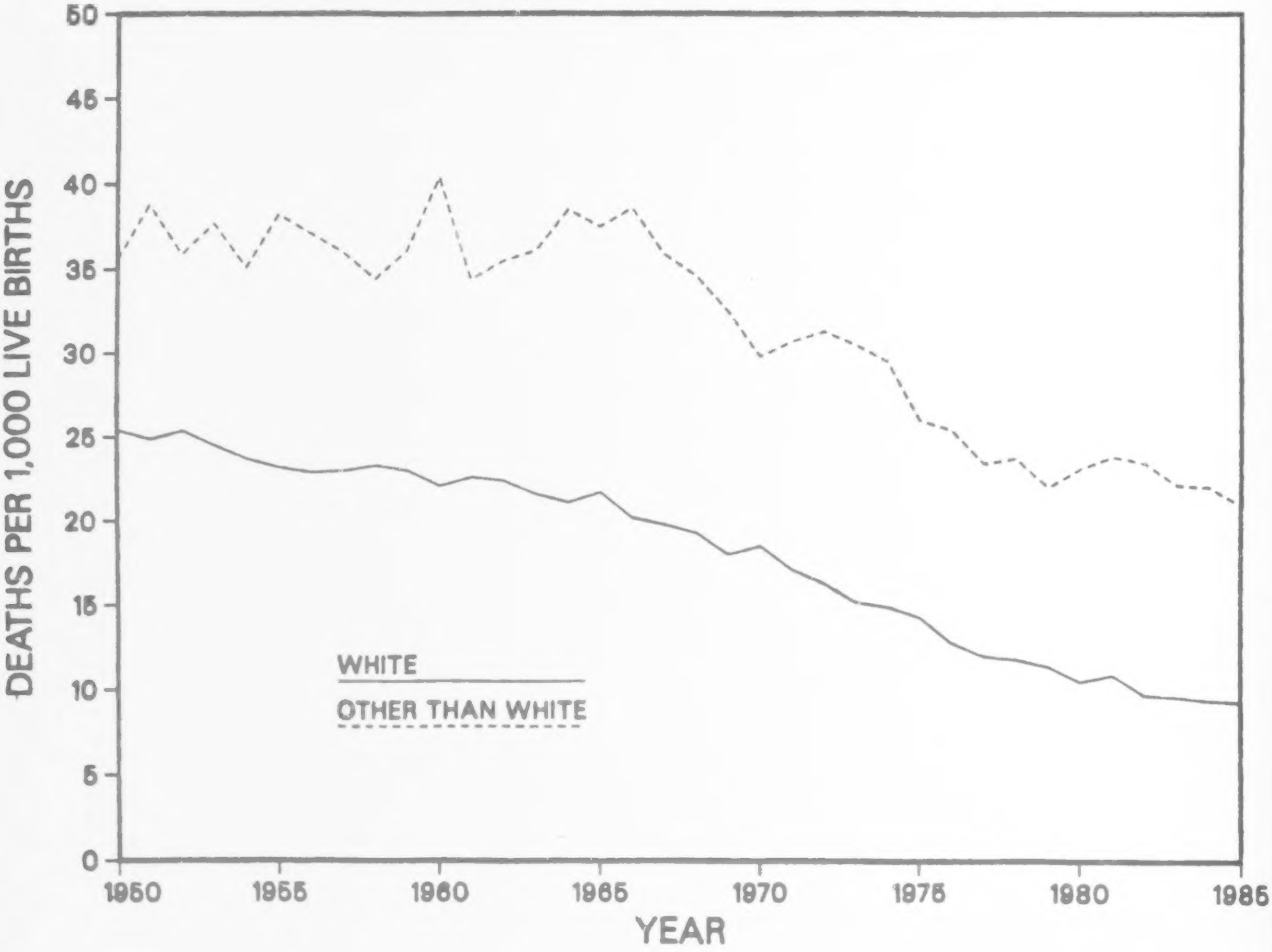


1-United States data for 1985 is provisional.

Table 2.53
Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1975-1985

YEAR	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1-6 DAYS		7-27 DAYS		28-364 DAYS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1975	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976	1,978	15.06	829	6.31	402	3.06	193	1.47	554	4.22
1977	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18
1978	1,931	13.91	717	5.17	384	2.77	180	1.30	650	4.68
1979	1,921	13.30	754	5.22	356	2.46	185	1.28	626	4.33
1980	1,851	12.75	[illegible]	5.44	310	2.14	184	1.27	567	3.91
1981	1,851	13.17	[illegible]	5.80	296	2.11	170	1.21	570	4.05
1982	1,672	12.12	751	5.44	284	2.06	167	1.21	470	3.41
1983	1,573	11.82	672	5.05	238	1.79	157	1.18	506	3.80
1984	1,595	11.75	718	5.29	237	1.75	145	1.07	495	3.65
1985	1,575	11.41	697	5.05	217	1.57	157	1.14	504	3.65

FIGURE 2.50
INFANT DEATH RATES BY RACE,[1]
MICHIGAN RESIDENTS, 1950-1985



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[1] Other than white rates for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

1950. Between 1950 and 1965, the infant mortality rate for white infants declined moderately while that for other than white infants remained relatively stable. Between 1965 and 1970 the rate for white infants declined by 14.7 percent while the rate for other than white infants declined by 20.5 percent. Since 1970, however, the rate for white infants has dropped by 49.7 percent while for other than white infants the decline was 29.9 percent. The rate for other than white infants of 35.6 in 1950[2] was 40.2 percent higher than that for white infants (25.4) whereas in 1985 the rate for other than white infants of 20.9 was 2.2 times that for white infants (9.3). From another perspective, the infant death rate for other than white infants in 1985 is about the same as the mortality rate experienced by white infants in 1965.

Michigan resident infant deaths in 1985 are listed by cause of death classification and age at death in Table 2.54. Congenital anomalies caused the death of 330 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 228 infant deaths in 1985, while respiratory distress syndrome was listed as the cause of 176 deaths. Over half (51.5 percent) of all infant deaths were attributed to conditions originating in the perinatal period. This proportion was 79.5 percent for deaths which occurred during the first day, 61.8 percent for deaths of infants at ages 1 through 6 days, and 49.7 percent for deaths of infants 1–3 weeks of age. This percentage was 9.1 percent for infants from 1–5 months and 8.3 percent for those 6–11 months of age.

The most frequent cause of death category during the first day was disorders relating to short gestation and unspecified low birthweight (20.5 percent). Congenital anomalies were also responsible for 19.1 percent of the deaths during the first day of life. Respiratory distress syndrome and other respiratory conditions of the newborn caused 11.6 and 11.0 percent of the deaths under 1 day of age respectively. Congenital anomalies and respiratory distress syndrome were the leading causes of death for infants 1–6 days of age (33.6 percent and 26.7 percent respectively). For infants who died at 1–3 weeks of age the most frequent causes were also congenital anomalies (30.6 percent) and respiratory distress syndrome (17.2 percent). Sudden infant death syndrome was reported as the cause of 48.4 percent of the deaths to infants from 1–5 months of age. The leading cause of death for infants from 6–11 months of age were congenital anomalies and accidents (17.4 percent each) and sudden infant death syndrome (14.7 percent). The 19 deaths due to accidents to infants aged 6–11 months represent 17.4 percent of the total deaths in this age group, while accidental deaths represent only 2.2 percent of all infant deaths.

Infant deaths and death rates by cause are shown for white and other than white infants in Table 2.55. The most frequent causes of death for white infants were congenital anomalies (261 deaths), sudden infant death syndrome (152 deaths), respiratory distress syndrome (126 deaths), other respiratory conditions of newborn (87 deaths) and a grouping of all other and ill-defined conditions originating in the perinatal period (83). For other than white infants this grouping was the leading cause of death with 84 infants deaths. This cause was followed by sudden infant death syndrome (76 deaths), disorders relating to short gestation and unspecified low birthweight (69 deaths), congenital anomalies (69 deaths) and respiratory distress syndrome (50 deaths). Cause-specific infant death rates for other than white infants were higher for all categories with sufficient events to calculate rates for both groups. Relative differential in mortality rates due to congenital anomalies was small compared to the differentials for the other categories.

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[2] Rates for other than white infants for 1950–1969 are based on deaths of unknown race as well as deaths of races other than white.

Table 2.54
Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1985

ICD - 9 CODE	CAUSE OF DEATH	AGE AT DEATH					
		TOTAL UNDER 1 YEAR	UNDER 1 DAY	1-6 DAYS	7-27 DAYS	1-5 MONTHS	6-11 MONTHS
8, 9, 535, 555-558	Certain gastrointestinal diseases	6	-	-	1	4	1
38	Septicemia	6	-	-	-	4	2
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	11	-	-	1	5	5
320-322	Meningitis	7	-	-	1	3	3
480-487	Pneumonia and Influenza	11	-	-	1	9	1
740-759	Congenital anomalies	330	133	73	48	57	19
761	Newborn affected by maternal complications of pregnancy	52	50	-	-	2	-
762	Newborn affected by complications of placenta, cord and membranes	34	30	3	1	-	-
765	Disorders relating to short gestation and unspecified low birthweight	150	143	6	1	-	-
767	Birth trauma	14	3	4	7	-	-
768	Intrauterine hypoxia and birth asphyxia	43	25	11	4	2	1
769	Respiratory distress syndrome	176	81	58	27	9	1
770	Other respiratory conditions of newborn	132	77	22	10	16	7
771	Infections specific to the perinatal period	32	11	9	11	1	-
772	Neonatal hemorrhage	10	4	5	1	-	-
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	168	130	16	16	6	-
760-779	Certain conditions originating in the perinatal period	811	554	134	78	36	9
798.0	Sudden infant death syndrome	228	1	1	19	191	16
E800-E949	Accidents and adverse effects	35	1	-	-	15	19
E960-E969	Homicide	8	1	-	1	3	3
Residual	All other causes	122	7	9	7	68	31
	Total	1,575	697	217	157	395	109

Table 2.55
Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1985

ICD - 9 CODE	CAUSE OF DEATH	RACE OF INFANT					
		TOTAL[1]		WHITE		OTHER THAN WHITE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	6	4.3	-	*	6	24.1
38	Septicemia	6	4.3	6	5.3	-	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	11	8.0	5	4.4	6	24.1
320-322	Meningitis	7	5.1	5	4.4	2	*
480-487	Pneumonia and influenza	11	8.0	9	8.0	2	*
740-759	Congenital anomalies	330	239.0	261	231.0	69	276.6
761	Newborn affected by maternal complications of pregnancy	52	37.7	37	32.7	15	60.1
762	Newborn affected by complications of placenta, cord and membranes	34	24.6	23	20.4	11	44.1
765	Disorders relating to short gestation and unspecified low birthweight	150	108.7	81	71.7	69	276.6
767	Birth trauma	14	10.1	10	8.9	4	*
768	Intrauterine hypoxia and birth asphyxia	43	31.1	25	22.1	18	72.2
769	Respiratory distress syndrome	176	127.5	126	111.5	50	200.4
770	Other respiratory conditions of newborn	132	95.6	87	77.0	45	180.4
771	Infections specific to the perinatal period	32	23.2	14	12.4	18	72.2
772	Neonatal hemorrhage	10	7.2	8	7.1	2	*
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	168	121.7	83	73.5	84	336.7
760-779	Certain conditions originating in the perinatal period	811	587.5	494	437.2	316	1266.8
798.0	Sudden infant death syndrome	228	165.2	152	134.5	76	304.7
E800-E949	Accidents and adverse effects	35	25.4	23	20.4	12	48.1
E960-E969	Homicide	8	5.8	6	5.3	2	*
Residual	All other causes	122	88.4	92	81.4	30	120.3
	Total	1,575	1,140.9	1,053	931.9	521	2,088.6

[1] Records with race not stated are included only in total columns.

[2] Rates per 100,000 live births.

The infant death rate from all causes for males was 34.2 percent greater than that for females. The differentials for deaths due to respiratory distress syndrome and sudden infant death syndrome were 68.2 percent and 54.9 percent respectively. The largest relative differential in rates by sex was for accidents and adverse effects where the rate for males was 2.7 times that for females (Table 2.56).

Infant mortality rates by race are presented in Table 2.57. These data are from a file of merged live birth and infant death information. The rates presented are for Michigan residents born in 1984. Note that this matched file is approximately 97.7 percent complete and, therefore, the rates presented are understated. The rates for black infants (22.5), American Indian infants (11.5) and other races (9.9) were 2.5, 1.3 and 1.1 times, respectively, that for white infants (9.1). The death rate for infants aged less than seven days (hebdomadal deaths) showed similar but somewhat higher variations by race (Table 2.58).

Data from the matched file on infant mortality rates by age of mother and race of child are presented in Table 2.59. Infant death rates display a parabolic relationship with mother's age. The rates are highest for infants born to mothers under age 20. The infant mortality rates of 32.3 and 18.0 for mothers under 15 years old and 15-19 years old respectively are 3.3 times and 1.8 times as high as the lowest rate of 9.8 for mothers aged 25-29 years. The infant mortality rate for mothers 40 or over is 26 percent higher than the lowest age-specific rate.

Rates for white and other than white infants generally follow the above pattern of association with mother's age. Rates for other than white infants are significantly above those for the white group in all categories with a sufficient number of events to calculate rates. The smallest differential was for mothers under 20 years of age. Overall, the rate for other than white infants was 2.4 times that for white infants.

Table 2.60 displays the variation in infant death rates according to the number of the mother's prenatal visits. The infant death rate for mothers who had no prenatal care was 100.7, twenty times as high as the low rate of 5.1 for mothers who had 10-14 prenatal visits. The rate associated with mothers who had 1-4 visits was 17.4 times the low rate, while the rate associated with mothers who had 5-9 visits was 3.9 times as high as the low rate. The infant death rate for mothers with 20 or more prenatal visits was 68.6 percent higher than the low rate, reflecting the likelihood that a high number of prenatal visits is connected with a problem pregnancy.

Infant death rates increase when the mother receives less adequate prenatal care as measured by the Kessner Index (Table 2.61). The infant death rate is 2.9 times higher for mothers with inadequate care (25.1 deaths per 1,000 live births) than for mothers with adequate care (8.8 deaths per 1,000 live births) and 1.7 times higher for mothers with intermediate care (14.7 deaths per 1,000 births). The pattern is similar for both white and other than white births. When the mother receives adequate care based on the number of visits, the month prenatal care began and the length of gestation, the infant death rate is 2.2 times higher for other than white infants (16.4 deaths per 1,000 live births) than for white infants (7.4 deaths per 1,000 live births).

Mothers with fewer than ten prenatal visits had 22.4 percent of all live births but 60.1 percent of all infant deaths. Mothers who had ten or more prenatal visits had 75.5 percent of the live births and 34.9 percent of the infant deaths. The infant death rate for mothers who had fewer than ten prenatal visits was 30.5. This is 5.8 times the rate of 5.3 for mothers who had ten or more prenatal visits.

Table 2.56
Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1985

ICD - 9 CODE	CAUSE OF DEATH	SEX OF INFANT					
		TOTAL[1]		MALE		FEMALE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	6	4.3	6	8.4	-	*
38	Septicemia	6	4.3	2	*	4	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	11	8.0	7	9.8	4	*
320-322	Meningitis	7	5.1	5	7.0	2	*
480-487	Pneumonia and influenza	11	8.0	6	8.4	5	7.5
740-759	Congenital anomalies	330	239.0	188	263.9	138	206.5
761	Newborn affected by maternal complications of pregnancy	52	37.7	31	43.5	21	31.4
762	Newborn affected by complications of placenta, cord and membranes	34	24.6	17	23.9	17	25.4
765	Disorders relating to short gestation and unspecified low birthweight	150	108.7	80	112.3	68	101.8
767	Birth trauma	14	10.1	10	14.0	4	*
768	Intrauterine hypoxia and birth asphyxia	43	31.1	21	29.5	22	32.9
769	Respiratory distress syndrome	176	127.5	113	158.6	63	94.3
770	Other respiratory conditions of newborn	132	95.6	77	108.1	55	82.3
771	Infections specific to the perinatal period	32	23.2	23	32.3	9	13.5
772	Neonatal hemorrhage	10	7.2	9	12.6	1	*
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	168	121.7	95	133.4	72	107.8
760-779	Certain conditions originating in the perinatal period	811	587.5	476	668.3	332	496.8
798.0	Sudden infant death syndrome	228	165.2	142	199.4	86	128.7
E800-E949	Accidents and adverse effects	35	25.4	26	36.5	9	13.5
E960-E969	Homicide	8	5.8	3	*	5	7.5
Residual	All other causes	122	88.4	62	87.0	60	89.8
	Total	1,575	1,140.9	923	1,295.9	645	965.3

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[1] Records with sex not stated are included only in total columns.

[2] Rates per 100,000 live births.

Table 2.57
Infant Deaths, Live Births, and Infant Death Rates[2] by Race, Michigan Resident Infants Born in 1984

RACE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Races	1,548	135,782	11.4
White	1,006	110,418	9.1
Black	518	23,005	22.5
American Indian	9	780	11.5
Other Races	15	1,508	9.9
Unknown	-	71	-

Table 2.58
Hebdomadal Deaths[1] and Death Rates[2] by Race, Michigan Resident Infants Born in 1984

RACE	HEBDOMADAL DEATHS	HEBDOMADAL DEATH RATE
All Races	935	6.9
White	582	5.3
Black	337	14.6
American Indian	5	6.4
Other Races	11	7.3
Unknown	-	-

[1] Deaths to infants less than seven days old.
[2] Per 1,000 live births.

Table 2.59

Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race[1] of Infant, Michigan Resident Infants Born in 1984

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Ages	1,548	135,782	11.4	1,006	110,418	9.1	542	25,293	21.4
Under 15 Years	11	341	32.3	2	113	*	9	228	39.5
15-19 Years	296	16,442	18.0	168	10,962	15.3	128	5,474	23.4
20-24 Years	468	41,664	11.2	285	33,666	8.5	183	7,977	22.9
25-29 Years	448	45,908	9.8	322	39,276	8.2	126	6,609	19.1
30-39 Years	315	30,615	10.3	220	25,758	8.5	95	4,837	19.6
40 or More Years	10	810	12.3	9	641	14.0	1	168	*
Age Not Stated	-	2	-	-	2	-	-	-	-

[1] Race not stated included in total columns only.

Table 2.60
Infant Deaths, Live Births and Infant Death Rates by Prenatal Visits and Race[1] of Infant, Michigan Resident Infants Born in 1984

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES
Total	1,548	135,782	11.4	1,006	110,418	9.1	542	25,293	21.4
0	90	894	100.7	34	524	64.9	56	368	152.2
1-4	327	3,696	88.5	174	2,236	77.8	153	1,456	105.1
5-9	514	25,887	19.9	347	19,669	17.6	167	6,210	26.9
10-14	430	83,621	5.1	321	70,423	4.6	109	13,180	8.3
15-19	83	15,614	5.3	67	12,848	5.2	16	2,764	5.8
20 or Over	28	3,268	8.6	18	2,426	7.4	10	842	11.9
Unknown	76	2,802	27.1	45	2,292	19.6	31	473	65.5

[1] Race not stated included in total columns only

Table 2.61
Infant Deaths, Live Births and Infant Death Rates by Level of Prenatal Care and Race[1] of Infant Michigan Resident Infants Born in 1984

LEVEL OF CARE (KESSNER INDEX[2])	ALL RACES			WHITE			ALL OTHER		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATES
Total	1,548	135,782	11.4	1,006	110,418	9.1	542	25,293	21.4
Adequate	870	98,434	8.8	610	82,553	7.4	260	15,861	16.4
Intermediate	393	26,655	14.7	247	20,168	12.2	146	6,480	22.5
Inadequate	199	7,925	25.1	92	5,505	16.7	107	2,414	44.3
Unknown	86	2,768	31.1	57	2,192	26.0	29	538	53.9

[1] Race not stated included in total columns only.

[2] The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies, fewer prenatal visits constitute adequate care)

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. While the overall rate for other than white infants was 2.4 times that for white infants, for mothers who had 1-4 prenatal visits the rates for other than white infants were much closer to the rates for white infants (35.1 percent higher). For mothers with fewer than ten prenatal visits, the infant mortality rate for white infants was 24.7 and that for other than white infants 46.8. For mothers with ten or more prenatal visits, the rate for white infants was 4.7 and for other than white infants 8.0. The rate for other than white infants was, thus, 89.5 percent higher where the mother had fewer than ten prenatal visits and 70.2 percent higher where the mother had ten or more visits. Both of these racial differentials were less than the overall racial differential of 135 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. The overall infant mortality rate for each race is a weighted sum of the infant mortality rates for the different prenatal care categories. The weight for each prenatal care category is the ratio of the number of live births in that category to the total number of live births. Since a greater proportion of the other than white live births are to mothers in the categories with fewer prenatal visits, the higher infant mortality rates in the categories with fewer prenatal visits are more heavily weighted for the other than white population.

When deaths under one week are added to fetal deaths the total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most postnatal accidental and environmental causes of death are eliminated. In 1984, Michigan resident perinatal deaths numbered 1,756 and the perinatal death rate was 12.9. This rate was 12.8 in 1983 and 26.0 in 1970. As with infant death rates, perinatal death rates vary considerably with race, age of mother, and number of prenatal visits. Tables 2.62 and 2.63 show perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and the race of the fetus or infant for fetal deaths and live births occurring in 1984. The data for hebdomadal deaths are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table 2.62 makes clear the increased risk of death to fetuses and infants of mothers under 20 years of age or 40 or greater years of age. Minimum risk in 1984 was associated with mothers 25-29 years of age. Table 2.63 indicates that the risk of perinatal death is thirty two times as great for fetuses and infants whose mothers had no prenatal visits compared to those whose mothers had 15-19 visits. The risk associated with 5-9 prenatal visits is 6.0 times as great as for the lowest risk category (15-19 visits).

The overall perinatal mortality rate for other than white fetuses and infants was over twice as high as for whites. The highest perinatal death rate for the other than white group was associated with mothers under age 15 and for white fetuses and infants was associated with mothers 40 or more years of age. The minimum risk was associated with mothers 20-24 years of age for white fetuses and infants and with mothers 25-29 years of age for other than white fetuses and infants (Table 2.62).

For both white and other than white fetuses and infants the highest mortality rates were associated with mothers who received less than 5 prenatal visits. For all categories of the number of prenatal care visits, the perinatal death rates were higher for other than white fetuses and infants than for white fetuses and infants. When the mother had 15 to 19 visits or 1 to 4 visits the differential was 8.1 or 10.1 percent respectively. The highest differential was 31.0 percent when the mother had 5 to 9 visits. This is still lower than the overall differential of 107.5 percent which is due to the higher perinatal rates for other than white fetuses and infants than for the white fetuses and infants as well as the higher percentages of other than white births with less than ten prenatal care visits.

Table 2.62
Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race[1] of Infant or Fetus, Births to Michigan Residents in 1984

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	1,756	135,782	12.9	1,186	110,418	10.7	566	25,293	22.4
Under 15 Years	11	341	32.3	2	113	*	9	228	39.5
15-19 Years	278	16,442	16.9	159	10,962	14.5	119	5,474	21.7
20-24 Years	503	41,664	12.1	317	33,666	9.4	186	7,977	23.3
25-29 Years	519	45,908	11.3	382	39,276	9.7	136	6,609	20.6
30-39 Years	423	30,615	13.8	311	25,758	12.1	112	4,837	23.2
40 or More Years	16	810	19.8	15	641	23.4	1	168	*
Age Not Stated	6	2	*	-	2	*	3	-	*

[1] Race not stated included in total columns only.

Table 2.63
Perinatal Deaths, Total Births and Perinatal Death Rates by Prenatal Visits and Race[1] of Infant or Fetus, Births to Michigan Residents in 1984

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES
Total	1,756	136,603	12.9	1,186	111,022	10.7	566	25,506	22.2
0	112	935	119.8	42	540	77.8	67	390	171.8
1-4	416	3,845	108.2	244	2,341	104.2	172	1,500	114.7
5-9	598	26,153	22.9	423	19,865	21.3	175	6,280	27.9
10-14	389	83,842	4.6	318	70,617	4.5	71	13,207	5.4
15-19	59	15,645	3.8	48	12,872	3.7	11	2,771	4.0
20 or Over	24	3,281	7.3	17	2,434	7.0	6	846	7.1
Unknown	158	2,902	54.4	94	2,353	39.9	64	512	125.0

[1] Race not stated included in total columns only.

The perinatal death rates increase for mothers with less than adequate prenatal care. The deaths rate is 3.3 times higher for mothers with inadequate care than for mothers with adequate care (31.9 vs 9.8 deaths per 1,000 live births and fetal deaths respectively). The perinatal death rate of other than white infants born to mothers with adequate care is 83 percent higher than the rate for white infants with the same level of prenatal care. The rate for other than white infants born to mothers with inadequate care is 2.4 times higher than the rate for white infants born to mothers with inadequate care (Table 2.64).

The median birth weight of infants born in 1984 and dying prior to 1 year of age was 1,304 grams (Table 2.65). The median birth weight of all Michigan resident live births in 1984 was 3.402 grams. For all maternal age groups, the median birth weight for infant deaths was well below the overall median birth weight for liveborn infants in 1984.

Infant death rates by race, birth weight and age at death are displayed in Table 2.66 for infants born in 1984. While the overall infant death rate for other than white infants was more than double that of white infants, the rates for white and other than white infants were quite similar for infants born weighing 1500 grams or less. The rate for white infants weighing 1501-2499 grams exceeded by 35.2 percent the comparable rate for other than white infants. For infants weighing 2,500 grams or more the rate for other than white infants exceeded by 47.4 percent that for white infants. A large part of the difference between infant death rates for white and other than white infants is due to the fact that a greater proportion of the other than white infants were born at weights below 2,500 grams (13.7 percent for other than white infants compared to 5.5 percent for white infants).

The differentials in death rates by race for deaths under 28 days (neonatal deaths) and from 28-364 days (postneonatal deaths) were similar to that for all infant deaths. The neonatal rate for white infants weighing 1501-2499 grams was 88.9 percent higher than the comparable rate for other than white infants while the postneonatal death rate for other than white infants in this birth weight category exceeded the comparable rate for white infants by 22.4 percent. For infants weighing 2500 grams or more at birth, the rates were higher for other than white infants by 29 percent and 58 percent, respectively, for neonatal and postneonatal deaths.

Table 2.64
Perinatal Deaths, Total Births and Perinatal Death Rates by Level of Prenatal Care and Race[1] Births to Michigan Residents in 1984

LEVEL OF CARE (KESSNER INDEX[2])	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATES
Total	1,756	136,603	12.9	1,186	111,022	10.7	566	25,506	22.2
Adequate	972	98,879	9.8	718	82,910	8.7	253	15,948	15.9
Intermediate	390	26,837	14.5	253	20,302	12.5	137	6,528	21.0
Inadequate	257	8,052	31.9	124	5,571	22.3	130	2,472	52.6
Unknown	137	2,835	48.3	91	2,239	40.6	46	558	82.4

[1] Race not stated included in total columns only.

[2] The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e., for shorter pregnancies fewer prenatal visits contstitute adequate care).

Table 2.65
Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants of Born in 1984

BIRTH WEIGHT IN GRAMS	TOTAL	MOTHER'S AGE						
		UNDER 15	15-19	20-24	25-29	30-39	40 OR MORE	NOT STATED
Total	1,548	11	296	468	448	315	10	-
500 or Less	295	4	49	85	89	65	3	-
501-1,000	387	5	79	119	110	72	2	-
1,001-1500	133	1	31	35	33	32	1	-
1,501-2,000	84	-	15	29	26	14	-	-
2,001-2,499	116	-	19	42	31	24	-	-
2,500-3,000	159	1	36	55	40	26	1	-
3,001-3,500	176	-	38	51	52	34	1	-
3,501-4,000	116	-	16	39	36	23	2	-
4,001-4,500	44	-	6	8	17	13	-	-
4,501 and Over	22	-	3	3	10	6	-	-
Not Stated	16	-	4	2	4	6	-	-
Median Weight in Grams	1,304	680	1,247	1,361	1,332	1,247	765	-

Table 2.66
Live Births by Birth Weight and Race of Infant and Infant Deaths and Infant Death Rates by Birth Weight, Age at Death, and Race of Infant, Michigan Resident Infants Born in 1984

BIRTHWEIGHT	RACE OF INFANT	LIVE BIRTHS	AGE AT DEATH					
			UNDER 1 YEAR		UNDER 28 DAYS		28-364 DAYS	
			NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
Total	All Races	135,782	1,548	11.4	1,080	8.0	468	3.4
	White	110,418	1,006	9.1	684	6.2	322	2.9
	All Other[1]	25,293	542	21.4	396	15.7	146	5.8
Less Than 1,501 Grams	All Races	1,853	815	439.8	748	403.7	67	36.2
	White	1,074	458	426.4	426	396.6	32	29.8
	All Other[1]	778	357	458.9	322	413.9	35	45.0
1,501-2,499 Grams	All Races	7,648	200	26.2	130	17.0	70	9.2
	White	4,961	143	28.8	101	20.4	42	8.5
	All Other[1]	2,681	57	21.3	29	10.8	28	10.4
2,500 Grams Or Greater	All Races	126,242	517	4.1	186	1.5	331	2.6
	White	104,361	394	3.8	146	1.4	248	2.4
	All Other[1]	21,827	123	5.6	40	1.8	83	3.8
Unknown Birthweight	All Races	39	16	410.3	16	410.3	-	000
	White	22	11	500.0	11	500.0	-	000
	All Other[1]	7	5	714.3	5	714.3	-	000

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[1] Race not stated included in total rows only.

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a public health concern. In 1985, deaths from all infectious and parasitic diseases numbered 901. As can be observed from Table 2.67, two thirds of these deaths were caused by septicemia (626 deaths). Mycoses and tuberculosis caused 50 and 46 deaths, respectively. When deaths attributed to late effects of tuberculosis are included, the number of deaths from tuberculosis rises to 50.

The distribution of infectious and parasitic disease deaths by age, race, and sex for 1985 is given in Table 2.68, and the corresponding death rates are shown in Table 2.69. Note that deaths to other than white persons accounted for 22.6 percent of all infectious and parasitic disease deaths but only 14.3 percent of deaths from all causes. The death rates were highest for persons aged 65 years and over (64.7 deaths per 100,000 population) and for infants under 1 year (14.2). Rates for other than white males were highest, followed by those for other than white females, white females and white males respectively.

Deaths due to such diseases as diphtheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitis and others have been virtually eliminated not only in Michigan, but across the nation. Table 4.7 illustrates trends in deaths from the major communicable diseases.

Table 2.67
Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1985

ICD LIST[1] NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	626
110-118	Mycoses	50
010-018	Tuberculosis	46
070	Viral Hepatitis	19
136.3	Pneumocystosis	19
135	Sarcoidosis	11
046	Slow Virus Infection of Central Nervous System	9
040.0	Gas Gangrene	8
054	Herpes Simplex	8
036	Meningococcal Infection	7
053	Herpes Zoster	4
137	Late Effects of Tuberculosis	4
052	Chickenpox	3
Residual 000-139	All Other Infectious and Parasitic Diseases	87
000-139	Total	901

[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

Table 2.68
Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1985

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	901	333	108	364	96
Under 1 Year	19	7	4	4	4
1-19 Years	15	7	2	4	2
20-44 Years	83	31	21	11	20
45-64 Years	170	55	42	56	17
65 or Over	614	233	39	289	53

Table 2.69
Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1985

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	9.9	8.8	16.6	9.2	13.3
Under 1 Year	14.2	12.5	*	*	*
1-19 Years	0.6	0.6	*	*	*
20-44 Years	2.3	2.0	8.6	0.7	7.0
45-64 Years	9.7	7.5	43.3	7.0	14.6
65 or Over	64.7	68.5	96.7	56.4	94.1

INJURY AT WORK

There were 188 deaths reported as resulting from injuries at work in 1985, 46 more than in 1984. These include all cases in which the underlying cause of death was external and the injury was reported to have occurred at work, whether or not the injury was work-related. Table 2.70 gives the frequency of deaths due to injuries at work by place of occurrence. The most common site was public building with 53 deaths. Injuries on streets and highways caused 41 deaths followed by injuries in industrial places and premises with 40 deaths. There were 23 deaths from injuries taking place on farms.

The most frequent cause of death associated with injuries at work was homicide and legal intervention which resulted in 38 deaths or 20.2 percent of all such deaths (Table 2.71). The second most common cause was accidental falls, accounting for 27 deaths and 14.4 percent of the total. Motor vehicle traffic accidents and accidents caused by machinery accounted for 26 and 25 deaths, respectively.

Table 2.70
Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1985

PLACE	NUMBER OF DEATHS
Public Building	53
Street and Highway	41
Industrial Place and Premises	40
Farm	23
Home	8
Place for Recreation and Sport	4
Resident Institution	2
Mine and Quarry	1
Other Specified Places	14
Place Not Specified	2
Total	188

Table 2.71
Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1985

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
E960-E978	Homicide and Legal Intervention	38	20.2
E880-E888	Accidental Falls	27	14.4
E810-E819	Motor Vehicle Traffic Accidents	26	13.8
E919	Accidents Caused by Machinery	25	13.3
E925	Accidents Caused by Electric Current	13	6.9
E950-E959	Suicide	12	6.4
E916	Struck Accidentally by Falling Object	9	4.8
E840-E845	Air and Space Transport Accidents	7	3.7
E820-E825	Motor Vehicle Nontraffic Accidents	3	1.6
E860-E869	Accidental Poisoning Caused by Gases & Vapors	3	1.6
E890-E899	Accident Caused by Fire and Flames	3	1.6
E913	Accidental Mechanical Suffocation	1	0.5
E910	Accidental Drowning & Submersion	1	0.5
E928	Other & Unspecified Environmental & Accidental Causes	2	1.1
Residual E800-E949	All Other Accidents	18	9.6
	Total	188	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 73.7 years, based on 1985 mortality and population data. Females demonstrated a significantly greater longevity than males. In 1985 the life expectancy at birth was 70.1 years for males and 77.3 years for females. This results from the higher mortality rates of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.72. It can be seen that longevity has increased greatly in Michigan since 1901, by 16.7 years for males and by 22.2 years for females. Females born in Michigan in 1901 could expect to live 1.7 years longer than their male counterparts. By 1950 the differential in life expectancy between the sexes was 5.5 years. This disparity increased to 7.6 years by 1971, remained constant through 1973, and by 1985 had declined to 7.2 years. Between 1975 and 1985 life expectancy for both males and females increased by 1.6 years.

The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1980 the life expectancy of males in Michigan was equal to that for males nationwide, at 70.0 years, while longevity for females residing in this state was 0.5 years below the average for the country. By 1985 the life expectancy of males and females in Michigan were 1.1 and 0.9 years below the national provisional life expectancy respectively. Note that females have consistently demonstrated greater longevity than males both in Michigan and in the United States.

White persons displayed a life expectancy 6.1 years greater than other than white persons in 1985. The life expectancy of white males was 7.3 years greater than other than white males in 1985 compared to a differential of 5.8 years in 1950 (Table 2.73). In 1970 the differential was 7.2 years, due in part to an actual reduction in life expectancy for other than white males between 1960 and 1970. Since 1970 life expectancy for other than white males has increased by 2.9 years, from 61.0 to 63.9 years while the life expectancy for white males rose 3.0 years. This is a reflection of the decline in mortality rates for several leading causes of death for these groups prior to 1981. The differential by race for female expectancies has declined over this period. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity declined to 4.9 years in 1985.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.51. The number of years of life remaining for females is greater than that for males throughout life. Other than white persons display similar life expectancies with their white counterparts in the older age intervals. The average number of years remaining for white females surpasses or equals that of other than white females for all age groups. Other than white males display a greater expectation than that of white males at ages 70 to 74.

Table 2.72
Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1985

UNITED STATES		YEAR	MICHIGAN	
MALE	FEMALE		MALE	FEMALE
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.7	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.2	75.9	1974	68.0	75.3
68.8	76.6	1975	68.5	75.7
69.1	76.8	1976	69.0	75.9
69.5	77.2	1977	69.3	76.3
69.6	77.3	1978	69.6	76.4
70.0	77.8	1979	70.0	76.8
70.0	77.4	1980	70.0	76.9
70.4	77.8	1981	70.2	76.9
70.9	78.1	1982	70.4	77.2
71.0	78.1	1983	70.5	77.1
71.2	78.2	1984	70.5	77.1
71.2[2]	78.2[2]	1985	70.1	77.3

[1] Michigan data for years 1920, 1930, and 1940 are for white persons only.

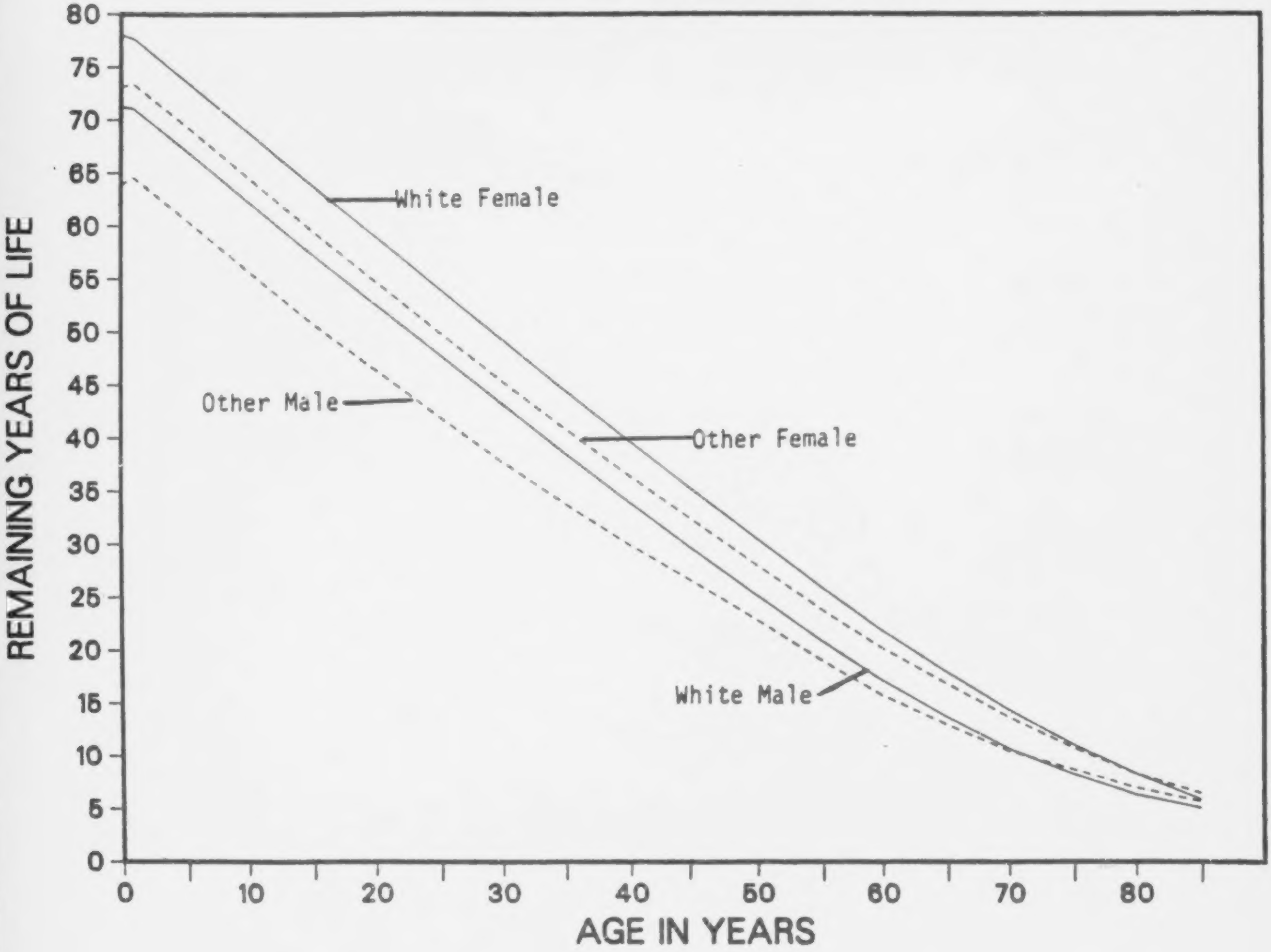
[2] Provisional

Table 2.73
Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950-1985[1]

POPULATION SUBGROUP	YEAR								
	1950	1960	1970	1980	1981	1982	1983	1984	1985
Total Population	68.3	70.0	70.8	73.4	73.5	73.8	73.8	73.9	73.7
Total Male	65.7	67.1	67.2	70.0	70.2	70.4	70.5	70.5	70.1
Total Female	71.2	73.3	74.6	76.9	76.9	77.2	77.1	77.1	77.3
Total White	68.8	70.5	71.6	74.3	74.3	74.6	74.6	74.7	74.6
White Male	66.2	67.5	68.2	71.0	71.0	71.3	71.4	71.5	71.2
White Female	71.9	74.0	75.3	77.6	77.6	77.9	77.8	77.8	78.0
Total All Other	61.8	65.6	65.0	68.5	68.7	69.0	68.9	68.8	68.5
All Other Male	60.4	63.6	61.0	64.3	64.7	64.9	64.8	64.7	63.9
All Other Female	63.4	67.7	69.4	72.7	72.7	73.1	72.9	72.9	73.1

[1] Data for 1980-1982 have been revised.

FIGURE 2.51
REMAINING YEARS OF LIFE BY AGE, SEX, AND RACE, MICHIGAN RESIDENTS, 1985



PLACE OF OCCURRENCE

There were 2,212 Michigan resident deaths in 1985 that occurred outside the state. This represents 2.8 percent of all resident deaths. Of the 2,212 deaths among Michigan residents 476 (21.5 percent) occurred in the state of Ohio, more than in any other state. The state with the second highest number of Michigan resident deaths was Florida with 19.1 percent (422 deaths). The border areas of Illinois, Indiana, Ohio, Wisconsin, and Canada accounted for 50.6 percent of all resident deaths outside Michigan. In addition to the above-mentioned areas, over 50 Michigan resident deaths also occurred in California, Texas, Arizona and Minnesota. Michigan resident deaths occurred in 48 of the 50 states in 1985, the District of Columbia and Canada (Table 2.74).

Of the 1,055 non-residents that died in Michigan in 1984, 48.7 percent were from the border areas while 22.6 percent were Floridians. Overall, non-residents who died in Michigan represented 42 states, the District of Columbia, 2 U. S. territories and at least five foreign countries.

Table 2.74
Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Deaths Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1985

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	2,212	100.0	1,055	100.0
Ohio	476	21.5	173	16.4
Florida	422	19.1	238	22.6
Indiana	335	15.1	75	7.1
Wisconsin	198	9.0	163	15.5
California	79	3.6	26	2.5
Illinois	72	3.3	84	8.0
Texas	65	2.9	20	1.9
Arizona	64	2.9	22	2.1
Minnesota	63	2.8	9	0.9
Tennessee	44	2.0	12	1.1
Canada	39	1.8	18	1.7
New York	22	1.0	28	2.7
Other Areas	333	15.1	187	17.7

MARRIAGE & DIVORCE

SECTION III

MARRIAGE AND DIVORCE: AN OVERVIEW 1985

TOTAL MARRIAGES	79,022
TOTAL DIVORCES AND ANNULMENTS	38,775
MARRIAGE RATE[1]	17.4
DIVORCE RATE[1]	8.5
MEDIAN AGE OF THE BRIDE	25
MEDIAN AGE OF THE GROOM	27

[1] Number of persons married or divorced per 1,000 population.

MARRIAGES AND DIVORCES

The number of marriages and divorces occurring in Michigan has increased considerably since 1900. While the frequency of marriage has generally followed the growth of Michigan's population, the rate of persons dissolving their marriages has increased over fourfold since 1900. The smallest number of marriages in the years 1900 to 1985 was 23,295 in 1900, while the largest number was 94,486 in 1973. After steep declines in the number of marriages in 1974 and 1975 and a smaller decline in 1976, the number of marriages increased during each of the following three years. In 1980 through 1983 the number of marriages declined. The number of marriages increased in 1984 and decreased in 1985. The number of marriages recorded in 1985 was 79,022, a decrease of 2.2 percent from the 1984 figure. The number of divorces and annulments increased from a low of 2,435 in 1900 to a high of 45,047 in 1980. In 1985 the number of divorces and annulments was 38,775. This represents an increase of 3.2 percent from the figure for 1984.

MARRIAGES

Since 1900 there have been noticeable changes in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The highest rates observed during this century were for the years immediately following the end of the two World Wars (27.7 in 1920 and 27.6 in 1946). The lowest rates occurred during the Great Depression of the 1930's.

The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, Michigan's marriage rate has been lower than that of the nation, excepting only the years 1964 through 1969. The gap between the marriage rate for Michigan and that for the nation has increased in recent years. In 1977 the U.S. rate (including nonlicensed marriages registered in California) was 6.9 percent above that of Michigan. By 1980, this percent increased to 12.8 and in 1985 the provisional rate for the nation was 17.2 percent above Michigan's rate.

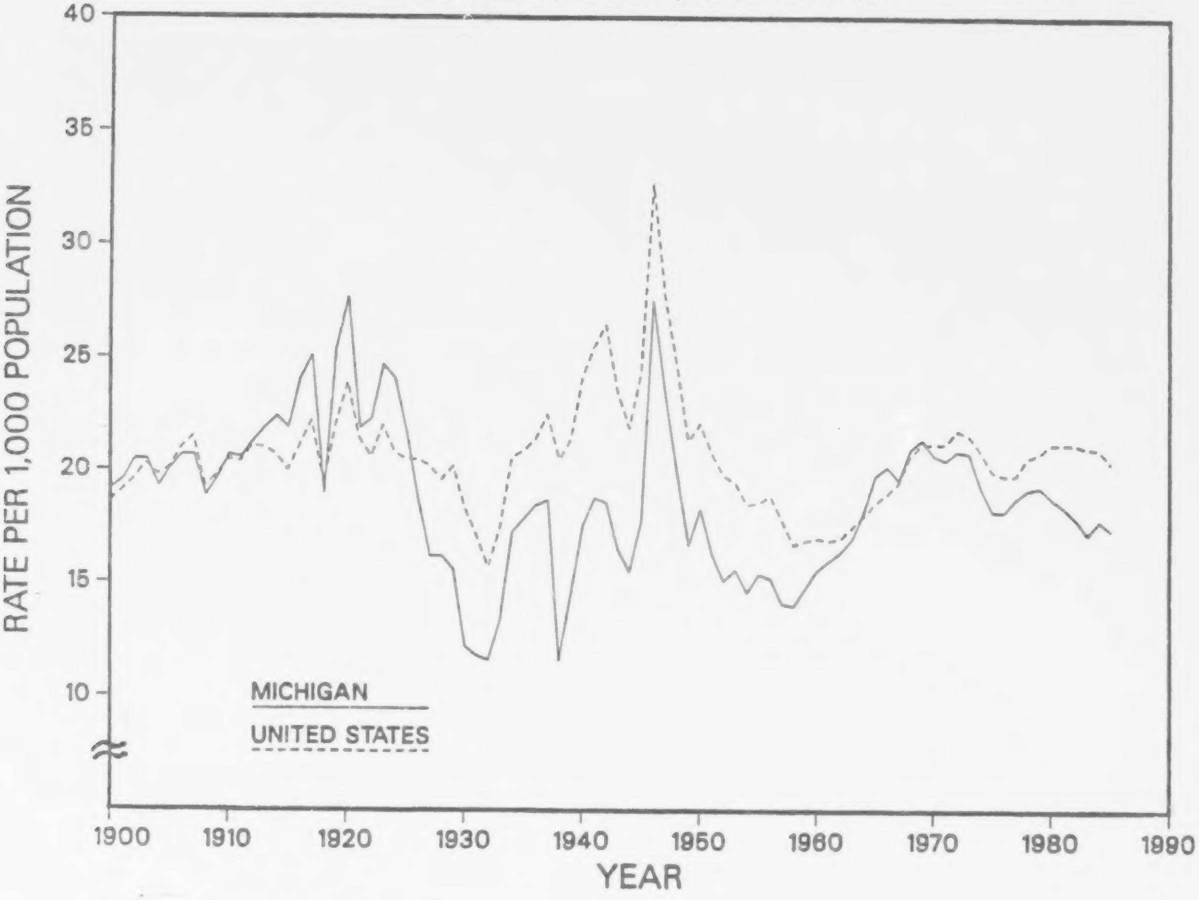
The marriage rate for Michigan in 1985 was 17.4, 2.2 percent lower than the 1984 rate of 17.8 (Table 3.1). The provisional rate for the nation in 1985 was 20.4.

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in some other state, the state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented are drawn from all marriages performed in the state regardless of the couple's residence.

Table 3.2 indicates that, in general, most of the couples marrying in Michigan are residents of the state. For marriages occurring in Michigan in 1985 95.9 percent of the

FIGURE 3.1
MARRIAGE RATES, MICHIGAN AND UNITED STATES
OCCURRENCES, 1900-1985[1]



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[1] United States rates for 1984 and 1985 are provisional.

Table 3.1
Marriages and Marriage Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1985

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	21.0
2,145,000	21.2	1969	93,392	21.4
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	21.8	1972	94,447	20.9
2,284,108	21.6	1973	94,486	20.8
2,229,667	20.9	1974	88,023	19.3
2,152,662	20.0	1975	82,856	18.2
2,154,807	19.8	1976	82,753	18.2
2,178,367	19.8	1977	86,088	18.8
2,282,272	20.6	1978[2]	88,333	19.2
2,331,337	20.8	1979	89,450	19.3
2,390,252	21.2	1980	86,898	18.8
2,422,145	21.2	1981	85,252	18.4
2,456,278	21.2	1982	82,633	17.9
2,445,604	21.0	1983	78,910	17.2
2,487,000Pr.	21.0Pr.	1984	80,810	17.8
2,425,000Pr.	20.4Pr.	1985	79,022	17.4

[1] Number of persons married per 1,000 population.

[2] Beginning with 1978, marriage data for the United States include nonlicensed marriages registered in California. If nonlicensed marriages were included in the 1977 total, the marriage rate would increase from 19.8 to 20.1.

Table 3.2
Marriages by Residence Status of Bride and Groom,
Michigan Occurrences, 1975 and 1985

RESIDENCE STATUS	1975		1985	
	NUMBER	PERCENT	NUMBER	PERCENT
Both Bride and Groom Residents . .	77,714	93.8	72,860	92.2
Bride Resident, Groom Non-Resident	3,039	3.7	2,944	3.7
Groom Resident, Bride Non-Resident	671	0.8	575	0.7
Both Bride and Groom Non-Resident	1,431	1.7	2,642	3.3
Residence Status, Not Stated . . .	1	0.0	1	0.0
Total	82,856	100.0	79,022	100.0

brides were residents of Michigan, while 92.9 percent of the grooms were residents of the state. These figures are slightly lower than those for marriages occurring in Michigan in 1975. Over the decade the proportion of marriages where both the bride and groom are not residents has increased slightly. These data indicate that the general characteristics of marriages occurring in Michigan should be representative of marriage patterns for Michigan residents.

There were a total of 3,217 non-resident brides married in Michigan in 1985. The figure for grooms is considerably greater than that of brides, numbering 5,586. Table 3.3 shows the most frequent residences of non-resident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence for 32 percent of all non-resident grooms and 34 percent of non-resident brides.

MONTH OF MARRIAGE

The number of marriages occurring in Michigan varies with the seasons. The most popular months for marriages in 1985 were June and August, with 10,726 and 10,721 marriage ceremonies being performed during these months respectively. September was also a popular choice, with 10.2 percent of all marriages being performed in this month. Fewer marriages occurred during the winter months. The lowest figure was for January, with about 26 percent of the number which occurred in June (Table 3.4).

AGE AT MARRIAGE

Examination of the data in Table 3.5 reveals that females generally marry at a younger age than do males. The number of females who marry before the age of 20 is 2.8 times the corresponding number of males. Between ages 20 and 24, 17 percent more brides than grooms married. Among persons 25 and over, males marry more frequently than females. In 1985 the median age of brides (25 years) marrying in Michigan was two years lower than the median age for grooms (27 years).

Since 1975, there have been significant declines in the marriage rate for persons of both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 63.4 percent. The comparable decline for females was 55.5 percent. The marriage rate declined by 35.7 percent and 17.6 percent respectively for males and females between the ages of 20 and 24. For males between the ages of 25 and 34 the rates of marriage have decreased since 1975 while the rates have increased for females. The rates for persons between 35 and 44 have increased for persons of both sexes, while rates for persons 45 and over have dropped.

The distribution of marriages by the age of bride and groom is shown in Table 3.6.

REMARRIAGES

Between 1975 and 1985 the percent of all marriages that were remarriages increased from 29.3 to 32.9 for brides and from 31.6 to 34.2 for grooms (Tables 3.7 and 3.8). The proportion of all marriages which are remarriages is displayed graphically in Figure 3.2 for the period 1960-1985. Between 1960 and 1965, the proportion of

Table 3.3
Place of Residence of Non-Resident Brides and Grooms, Marriages Occurring in Michigan, 1985

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
Arizona	63	104
California	326	507
Colorado	117	168
Florida	301	490
Georgia	79	145
Illinois	341	561
Indiana	271	441
Minnesota	76	129
New York	104	216
North Carolina	38	96
Ohio	292	496
Texas	292	473
Virginia	71	135
Wisconsin	193	268
Other U.S. Places	578	1,116
Foreign Countries	75	241
Total	3,217	5,587[1]

[1] Includes one case with unknown residence.

Table 3.4
Marriages by Month, Michigan Occurrences, 1985

MONTH	NUMBER	PERCENT
January	2,796	3.5
February	3,785	4.8
March	4,402	5.6
April	5,131	6.5
May	7,729	9.8
June	10,726	13.6
July	7,281	9.2
August	10,721	13.6
September	8,062	10.2
October	7,368	9.3
November	5,666	7.2
December	5,355	6.8
January - December	79,022	100.0

Table 3.5
Number of Marriages and Marriage Rates[1] by Age and Sex,
Michigan Occurrences, 1975 and 1985

AGE IN YEARS	MALES			FEMALES		
	RATE 1975	NUMBER OF MARRIAGES 1985	RATE 1985	RATE 1975	NUMBER OF MARRIAGES 1985	RATE 1985
Under 20[2]	22.7	3,711	8.3	53.0	10,221	23.6
20-24	81.7	24,904	52.5	74.9	29,058	61.7
25-34	39.6	32,111	39.5	24.9	26,673	32.0
35-44	14.3	10,641	21.6	11.3	8,318	16.3
45 or Over	6.4	7,650	6.3	3.9	4,749	3.2
Not Stated	000	5	000	000	3	000
Total	18.4	79,022	17.9	17.8	79,022	16.9
Median Age at Last Birthday	000	27	000	000	25	000

[1] Number of persons married per 1,000 population.
[2] 15-19 population used to obtain rate.

Table 3.6
Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1985

AGE OF GROOM	AGE OF BRIDE													
	TOTAL	UNDER 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 AND OVER	NOT STATED
Total	79,022	10,221	29,058	17,613	9,060	5,303	3,015	1,725	1,015	681	547	381	400	3
Under 20	3,711	2,868	743	74	14	9	3	-	-	-	-	-	-	-
20-24	24,904	5,984	15,990	2,310	469	118	23	8	-	-	-	-	1	1
25-29	21,036	1,083	9,279	8,258	1,828	470	91	24	1	2	-	-	-	-
30-34	11,075	195	2,154	4,359	3,032	1,037	227	63	6	2	-	-	-	-
35-39	6,536	50	608	1,661	2,104	1,487	473	128	21	4	-	-	-	-
40-44	4,105	24	190	614	982	1,149	830	246	53	11	3	2	1	-
45-49	2,631	7	57	219	387	602	708	473	129	39	4	3	3	-
50-54	1,587	4	20	68	138	243	357	387	256	80	24	6	4	-
55-59	1,206	2	9	36	62	126	198	228	276	176	70	21	2	-
60-64	902	1	6	8	31	41	74	112	175	200	183	58	13	-
65-69	573	-	2	5	11	12	22	40	60	107	147	112	55	-
70 and Over	751	1	-	-	2	9	9	16	38	60	116	179	321	-
Not Stated	5	2	-	1	-	-	-	-	-	-	-	-	-	2

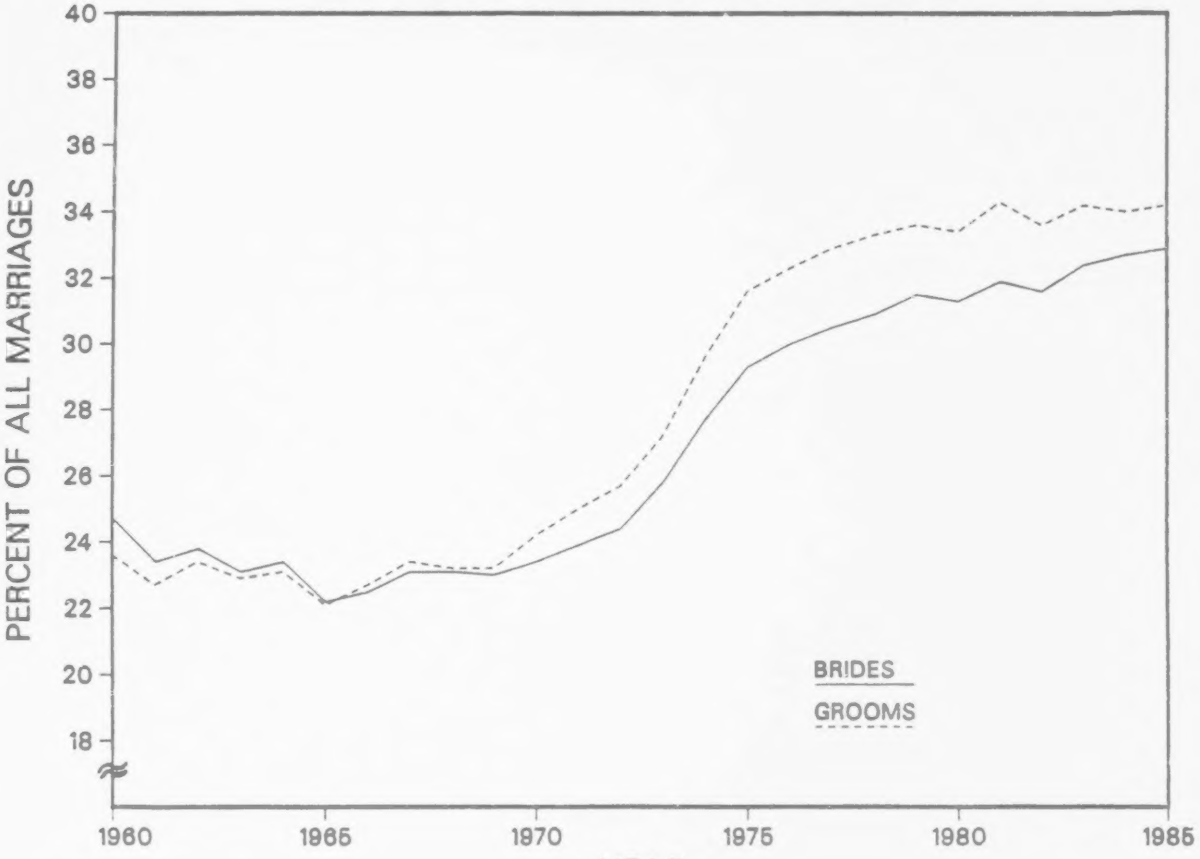
Table 3.7
Age at First Marriage and Remarriage: Bride
Michigan Occurrences, 1975 and 1985

AGES	1975				1985			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20 . .	25,120	24,723	377	20	10,221	10,133	85	3
Percent . .	30.3	42.2	1.6	58.8	12.9	19.1	0.3	23.1
20-24	30,701	26,604	4,091	6	29,058	26,872	2,183	3
Percent . .	37.1	45.4	16.9	17.7	36.8	50.7	8.4	23.1
25-29	10,936	5,189	5,741	6	17,613	11,764	5,844	5
Percent . .	13.2	8.9	23.7	17.7	22.3	22.2	22.5	38.5
30-34	5,140	1,075	4,064	1	9,060	3,059	6,001	-
Percent . .	6.2	1.8	16.7	2.9	11.5	5.8	23.1	-
35-44 . . .	5,288	599	4,689	-	8,318	924	7,394	-
Percent . .	6.4	1.0	19.3	-	10.5	1.7	28.4	-
45 or Over .	5,666	361	5,304	1	4,749	240	4,507	2
Percent . .	6.8	0.6	21.9	2.9	6.0	0.5	17.3	15.4
Not Stated .	5	3	2	-	3	2	1	-
Percent . .	0.0	0.0	0.0	-	0.0	0.0	0.0	-
Total	82,856	58,554	24,268	34	79,022	52,994	26,015	13
Percent . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	22	20	32	17	25	23	34	25

Table 3.8
Age at First Marriage and Remarriage: Groom
Michigan Occurrences, 1975 and 1985

AGES	1975				1985			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20	11,231	11,188	34	9	3,711	3,706	4	1
Percent	13.6	19.7	0.1	37.5	4.7	7.1	0.0	11.1
20-24	33,674	31,327	2,339	8	24,904	23,972	930	2
Percent	40.6	55.3	8.9	33.3	31.5	46.1	3.4	22.2
25-29	16,023	10,336	5,684	3	21,036	16,869	4,165	2
Percent	19.3	18.2	21.7	12.5	26.6	32.4	15.4	22.2
30-34	6,923	2,157	4,763	3	11,075	5,201	5,874	-
Percent	8.4	3.8	18.2	12.5	14.0	10.0	21.7	-
35-44	7,003	1,002	6,000	1	10,641	1,842	8,797	2
Percent	8.5	1.8	22.9	4.2	13.5	3.5	32.6	22.2
45 or Over	8,000	645	7,355	-	7,650	411	7,237	2
Percent	9.7	1.1	28.1	-	9.7	0.8	26.8	22.2
Not Stated	2	-	2	-	5	3	2	-
Percent	0.0	-	0.0	-	0.0	0.0	0.0	-
Total	82,856	56,655	26,177	24	79,022	52,004	27,009	9
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	24	22	35	21	27	24	37	28

FIGURE 3.2
PERCENT OF ALL MARRIAGES THAT ARE REMARRIAGES, MICHIGAN OCCURRENCES, 1960-1985



remarriages dropped. Since 1965, this proportion has increased. The increase in the period 1972 through 1975 was especially marked for both sexes.

The number of remarriages among females increased by 7.2 percent between 1975 and 1985, while the number of brides who had been married at least three times previously increased by 32.5 percent. Total remarriages for grooms increased by 3.2 percent and fourth or higher order marriages increased in frequency by 38.1 percent between 1975 and 1985 (Tables 3.9 and 3.10).

As remarriages can only occur when a prior marriage has been terminated by a divorce, an annulment or the death of a spouse, it is apparent that persons remarrying will be generally older. Tables 3.9 and 3.10 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. Note, however, the downward shift between 1975 and 1985 in the age distribution for third and higher order marriages for brides. The median age of brides at marriage for third marriages declined by one year during this period, while for fourth and higher order marriages the median age declined by two years for brides.

Changes in the frequency of remarriages have varied substantially in different age groups. Among persons under age 25 of both sexes the number of remarriages declined between 1975 and 1985. The number of brides between ages 25 and 29 who had previously been married increased by 1.8 percent between 1975 and 1985, while that of grooms declined 26.7 percent. The greatest relative increase in numbers of remarriages for females and males occurred in the age group 35-44 years. The numbers of remarriages increased 57.7 percent for females and 46.6 percent for males. For females and males 45 and over the number of remarriages declined.

The most frequent age interval for remarriage among males was 45 years of age or older in 1975 and 35-44 years of age in 1985 (Table 3.7 and 3.8). Among females in 1975 the most frequent age interval for remarriage was 25-29 years of age. It was 35-44 years of age in 1985.

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such reflects the propensity of the population as a whole to enter into marital agreements.

There has been a general increase followed by a decline in both the number and rate of first marriages between 1975 and 1985. Over the eleven years the number of first marriages dropped 9.5 percent for women and 8.2 percent for men. The rate of first marriages dropped by 9.5 percent for women and 7.1 percent for men. For men and women, the number and rate of first marriages dropped between 1975 and 1976, increased between 1976 and 1979, fell in the years 1980 through 1983 and increased in 1984 and decreased again in 1985 (Tables 3.11, 3.12, 3.13 and 3.14).

Changes in the frequency of first marriages have varied in different age groups. The greatest decline in first marriages occurred in the under 20 age group for both brides and grooms, and the decline has been consistent over the period 1975-1985. The number of first marriages in the under 20 age group dropped by 59.0 percent for brides and by 66.9 percent for grooms between 1975 and 1985 while the corresponding rate for first

Table 3.9
Remarriages of Brides by Age and Order of Marriage,
Michigan Occurrences, 1975 and 1985

AGES	1975				1985			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	82,856	19,385	3,975	908	79,022	20,189	4,623	1,203
Under 20 . . .	25,120	373	4	-	10,221	85	-	-
20-24	30,701	3,888	185	18	29,058	2,102	77	4
25-29	10,936	5,018	657	66	17,613	5,234	559	51
30-34	5,140	3,179	739	146	9,060	4,693	1,100	208
35-39	3,081	1,913	585	151	5,303	3,185	1,104	301
40-44	2,207	1,388	485	157	3,015	1,873	682	249
45 or Over . .	5,666	3,624	1,320	360	4,749	3,017	1,100	390
Not Stated . .	5	2	-	-	3	-	1	-
Median Age at Last Birthday	22	30	38	42	25	32	37	40

Table 3.10
Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1975 and 1985

AGES	1975				1985			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	82,856	21,200	4,125	852	79,022	20,762	5,070	1,177
Under 20 . . .	11,231	34	-	-	3,711	4	-	-
20-24	33,674	2,281	55	3	24,904	916	14	-
25-29	16,023	5,171	474	39	21,036	3,889	265	11
30-34	6,923	3,991	674	98	11,075	4,901	858	115
35-39	4,096	2,647	652	116	6,536	3,806	1,071	201
40-44	2,907	1,904	528	153	4,105	2,485	983	251
45 or Over . .	8,000	5,171	1,741	443	7,650	4,759	1,879	599
Not Stated . .	2	1	1	-	5	2	-	-
Median Age at Last Birthday	24	33	41	45	27	35	41	45

Table 3.11
First Marriages by Age of Bride, Michigan Occurrences, 1975-1985

AGE OF BRIDE	YEAR										
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
All Ages	58,554	57,860	59,832	60,956	61,281	59,656	58,006	54,746	53,282	54,372	52,994
15-19 Years[1]	24,723	23,208	22,341	20,858	19,531	17,541	15,723	13,884	12,657	11,465	10,133
20-24 Years	26,604	27,014	28,893	30,356	31,260	30,620	29,931	28,100	26,934	27,945	26,872
25-29 Years	5,189	5,634	6,348	7,412	8,059	8,895	9,466	9,776	10,331	11,174	11,764
30-34 Years	1,075	1,113	1,377	1,469	1,595	1,781	2,029	2,117	2,428	2,752	3,059
35-39 Years	422	381	385	418	402	415	449	488	558	651	713
40-44 Years	177	205	173	165	166	160	160	166	167	187	211
45-49 Years	132	126	118	104	110	95	82	73	88	69	95
50 or Over	229	177	197	173	156	149	165	138	116	127	145
Not Stated	3	2	-	1	2	-	1	4	3	2	2

[1] Brides under age 15 included in age 15-19.

Table 3.12
First Marriages by Age of Groom,
Michigan Occurrences, 1975-1985

AGE OF GROOM	YEAR										
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
All Ages	56,655	55,962	57,737	58,806	59,356	57,840	56,017	53,134	51,891	53,293	52,004
15-19 Years	11,188	10,206	9,481	8,267	7,906	6,810	6,070	5,309	4,794	4,330	3,706
20-24 Years	31,327	30,961	32,269	32,900	32,501	31,256	29,698	27,303	25,467	25,374	23,972
25-29 Years	10,336	10,916	11,706	13,026	13,924	14,654	14,834	14,887	15,544	16,455	16,869
30-34 Years	2,157	2,288	2,653	2,996	3,360	3,580	3,790	4,025	4,286	5,147	5,201
35-39 Years	680	665	747	797	837	816	879	956	1,074	1,228	1,456
40-44 Years	322	343	324	297	332	292	279	280	321	352	386
45-49 Years	241	226	198	183	160	170	167	137	152	140	164
50 or Over	404	355	358	340	335	262	297	237	246	263	247
Not Stated	-	2	1	-	1	-	3	-	7	4	[illegible]

Table 3.13
First Marriage Rates[1] by Age of Bride, Michigan Occurrences, 1975-1985

AGE OF BRIDE	YEAR										
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
All Ages	12.6	12.4	12.8	12.9	12.9	12.6	12.2	11.6	11.3	11.7	11.4
15-19 Years[2]	55.8	52.5	50.4	46.9	43.8	39.3	36.5	31.4	28.9	26.5	23.4
20-24 Years	63.9	63.9	67.1	69.1	69.8	67.6	66.1	60.4	57.6	59.5	57.1
25-29 Years	14.5	15.4	16.8	19.1	20.1	21.8	22.8	22.9	23.8	25.5	26.8
30-34 Years	3.5	3.5	4.2	4.3	4.5	4.9	5.3	5.6	6.3	7.0	7.7
35-39 Years	1.6	1.4	1.4	1.5	1.4	1.4	1.5	1.7	1.9	2.2	2.4
40-44 Years	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0
45-49 Years	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.3	0.5
50 or Over	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

[1] Number of persons married per 1,000 population.

[2] Brides under 15 included in age 15-19

Table 3.14
First Marriage Rates[1] by Age of Groom, Michigan Occurrences, 1975-1985

AGE OF GROOM	YEAR										
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
All Ages	12.7	12.6	12.9	13.1	13.2	12.8	12.4	11.8	11.6	12.1	11.8
15-19 Years	25.0	22.8	21.1	18.3	17.4	15.0	13.8	11.7	10.7	9.7	8.3
20-24 Years	80.7	77.7	78.8	78.1	75.0	70.8	67.3	59.1	54.4	53.6	50.6
25-29 Years	29.6	30.4	31.7	34.2	35.5	36.7	36.5	35.6	36.6	38.3	39.2
30-34 Years	7.3	7.5	8.4	9.1	9.9	10.3	10.3	10.9	11.4	13.5	13.6
35-39 Years	2.7	2.6	2.8	3.0	3.0	2.9	3.1	3.4	3.7	4.3	5.1
40-44 Years	1.3	1.4	1.4	1.3	1.4	1.3	1.2	1.3	1.5	1.7	1.9
45-49 Years	1.0	1.0	0.9	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.9
50 or Over	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2

[1] Number of persons married per 1,000 population.

marriages dropped 58.1 percent for brides and 66.8 percent for grooms. The number and rate of first marriages also declined substantially for grooms in the 20-24 year age group.

There were significant increases in the number and rate of first marriages of both brides and grooms between ages 25 and 39. Between 1975 and 1985 the number of first marriages increased by 63.2 percent, 141.1 percent, 114.1 percent and 19.9 percent for grooms aged 25-29, 30-34, 35-39 and 40-44 years respectively. For brides the comparable figures were 126.7 percent, 184.6 percent, 69.0 percent and 19.2 percent. Since 1975 the number of first marriages has declined for persons aged 45 or over.

MEDIAN AGE AT FIRST MARRIAGE

The median age at first marriage declined for both brides and grooms between 1953 and the mid-1960's. This decline was greater for males than for females. Grooms were 34 months older than brides at the median in 1953, 23 months older in 1963 and 20 months older in 1968. During the past fourteen years, the median age at first marriage has increased by about the same amount for both males and females. Grooms were 19 months older than brides at the median in 1985.

The median age at first marriage in 1985 was 23 years 0 month for brides and 24 years 8 months for grooms. The 1985 figures are the highest median ages at first marriage recorded during the period (Figure 3.3).

DIVORCES AND ANNULMENTS

The number of reported divorces and annulments reached a record high in 1980, both in Michigan and the nation. In 1981, the frequency for Michigan declined while the national figure reached another record high. Between 1980 and 1985, the Michigan frequency had declined by 13.9 percent to 38,775. Nationally, the number of divorces declined in 1985 to 2.1 percent below the record high figure set in 1981.

The number of divorces and annulments reported for Michigan in 1985 was 2.3 times the number for 1960. Between 1960 and 1970 the number of divorces and annulments increased by 80 percent. Between 1970 and 1975 the number of divorces and annulments increased by 36 percent, and from 1975 to 1980 the increase was 10 percent. During the latter period the first annual declines since 1963 occurred. The number of divorces and annulments declined steadily between 1980 and 1984. In 1985 the number of divorces and annulments was 3.2 percent higher than in 1984.

The number of persons divorced in Michigan per thousand population decreased from 9.7 in 1980 to 8.5 in 1985. The national rate also declined from a high of 10.6 in 1981 to a provisional rate of 10.0 in 1985. Michigan's divorce rate was higher than that for the United States each year from 1900 through 1947. In the following 38 years the Michigan divorce rate has been at or below the national rate 31 times, including each of the past 16 years (Table 3.15 and Figure 3.4). The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900. The highest divorce rate for Michigan during this century was recorded in 1946 (10.2).

The number of children under 18 of couples dissolving marriages in 1985 was at least 38,673 (Table 3.16). This is 18.8 percent below the number in 1975. The number of

FIGURE 3.3

MEDIAN AGE AT FIRST MARRIAGE BY SEX, MICHIGAN OCCURRENCES, 1953-1985

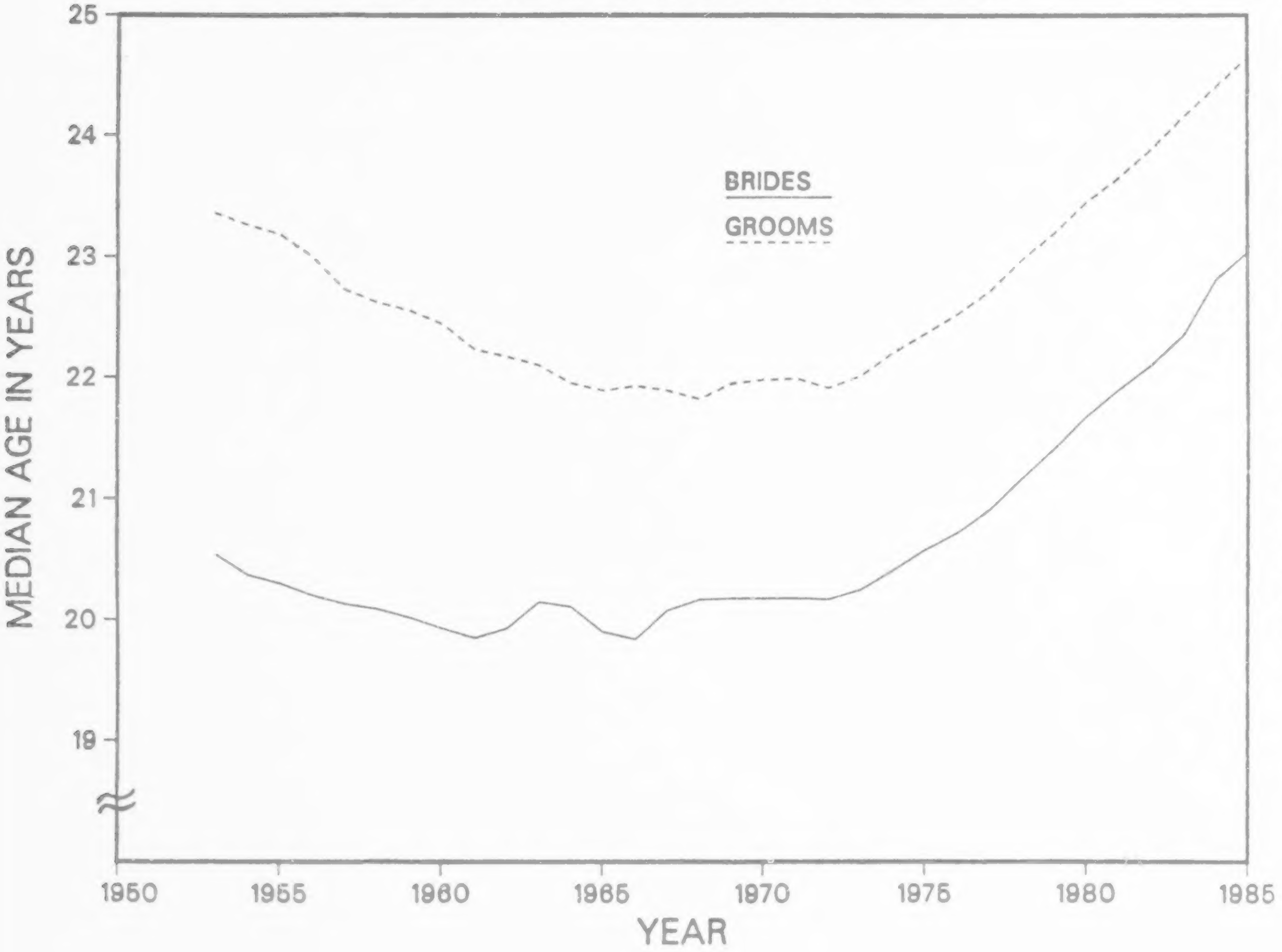


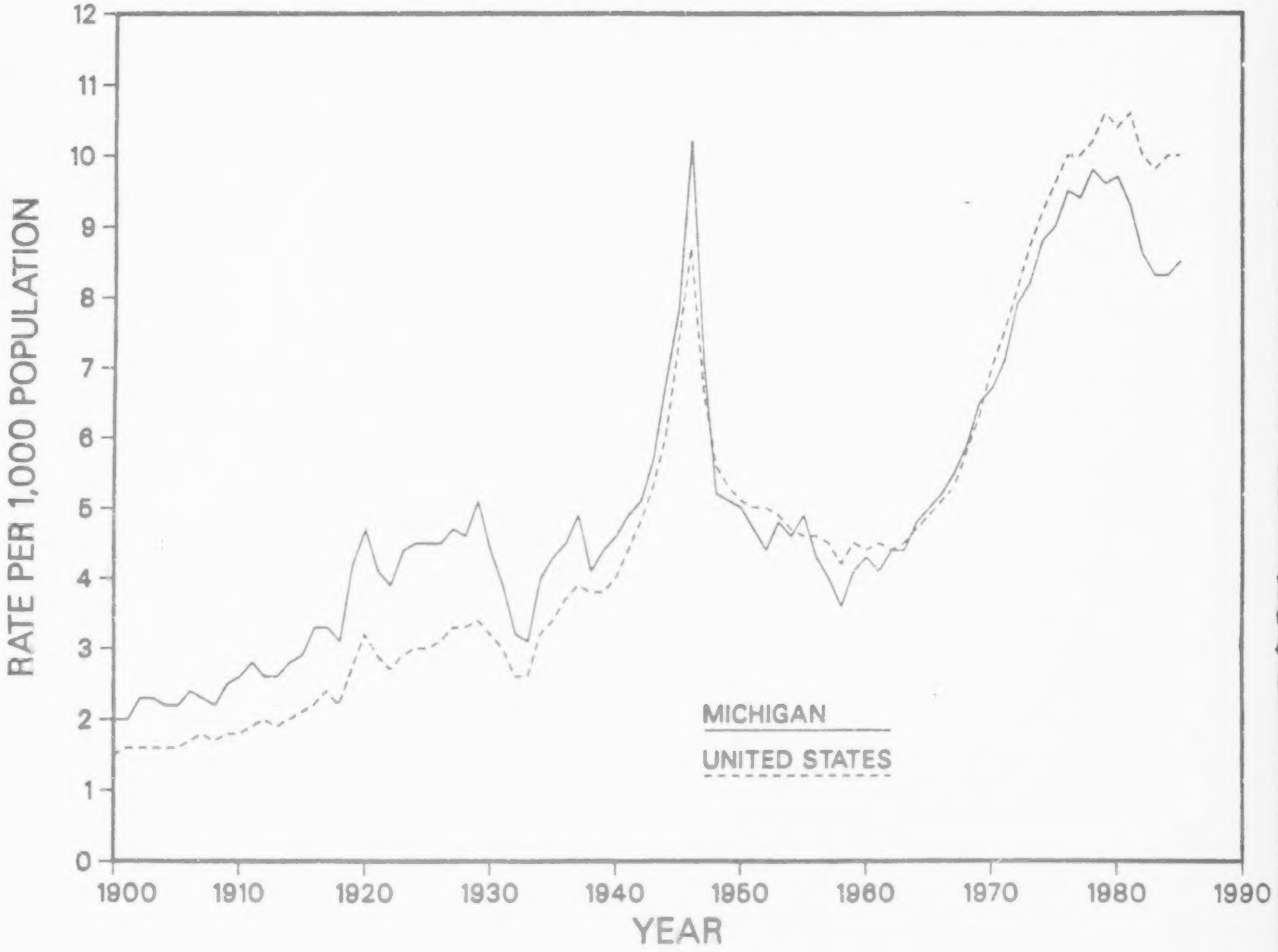
Table 3.15
Number of Divorces and Annulments, and Divorce and Annulment Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1985

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,656	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,128	8.2
977,000	9.2	1974	39,940[2]	8.8[2]
1,036,000	9.6	1975	40,782	9.0
1,083,000	10.0	1976	43,101	9.5
1,091,000	9.9	1977	43,036	9.4
1,130,000	10.2	1978	45,029	9.8
1,181,000	10.5	1979	44,242	9.6
1,189,000	10.5	1980	45,047	9.7
1,213,000	10.6	1981	43,167	9.3
1,170,000	10.0	1982	39,739	8.6
1,158,000	9.8	1983	37,991	8.3
1,169,000	10.0	1984	37,563	8.3
1,187,000Pr.	10.0Pr.	1985	38,775	8.5

[1] Number of persons whose marriages ended in divorce or annulment per 1,000 population.

[2] Estimate.

FIGURE 3.4
DIVORCE RATES, MICHIGAN AND UNITED STATES[1]
OCCURRENCES, 1900-1985



1-United States data for 1985 is provisional.

Table 3.16
Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1975 and 1985

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	
	NUMBER		PERCENT			
	1975	1985	1975	1985	1975	1985
Zero	16,647	14,749	40.8	38.0	-	-
One	9,739	9,523	23.9	24.6	9,739	9,523
Two	8,060	8,411	19.8	21.7	16,120	16,822
Three	3,776	2,867	9.3	7.4	11,328	8,601
Four	1,533	667	3.8	1.7	6,132	2,668
Five or More	860	196	2.1	0.5	4,300	1,059
Not Stated	167	2,362	0.4	6.1	-	-
Total	40,782	38,775	100.0	100.0	47,619	38,673

[1] Total children for marriages involving 6 or more children under 18 is not available.

children affected by divorce has however increased as a proportion of all children. This ratio increased from 6.5 per 1,000 Michigan children in 1960 to 12.5 in 1970 and to 17.0 by 1978 (Table 3.17). The rate was stable between 1978 and 1981. It declined to 14.7 in 1983 and increased to 15.8 in 1985.

The average number of children per divorce has, nonetheless, dropped from 1.36 children in 1970 to 1.00 in 1985. The decline primarily reflects a decline in the proportion of divorces involving three or more children. It should be noted that Michigan live birth data indicate that there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Data for the United States indicate a similar pattern.

Approximately 36 percent of the persons divorced in 1985 in Michigan were from 25 to 34 years of age (Table 3.18). The median age for husbands was 34 years and 6 months, while the median age for wives was 30 months younger (32 years and 0 months). About 13.9 percent of the wives were under 25 years of age compared to only 7.8 percent of the husbands. Conversely, 5.3 percent of the wives were 50 years of age or older compared to 8.7 percent of the husbands.

In 10.3 percent of the marriages dissolved in Michigan in 1985 the couple separated less than one year after the marriage took place, and in 42.5 percent of the marriages ended by divorce or annulment the separation took place within five years of the date of marriage (Table 3.19). The median duration of marriage at the time of dissolution was 7 years and 4 months. For over fifty percent of the marriages ended by divorce or annulment in 1985, the length of time was 12 months, between the date of separation and the date of dissolution was 12 months.

Table 3.17
Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Decree, and Rate per 1,000 Children Under 18 Years of Age, Michigan and the United States, Selected Years 1960-1985

MICHIGAN				UNITED STATES		
Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age	Year	Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age
19,209	1.15	6.5	1960	463,000	1.18	7.2
40,596	1.36	12.5	1970	870,000	1.22	12.5
43,430	1.37	13.4	1971	946,000	1.22	13.6
46,538	1.31	14.4	1972	1,021,000	1.20	14.7
48,153	1.18	15.8	1975	1,123,000	1.08	16.7
49,555	1.15	16.6	1976	1,117,000	1.03	16.9
47,569	1.11	16.3	1977	1,095,000	1.00	16.7
48,510	1.08	17.0	1978	1,147,000	1.01	17.7
47,019	1.07	16.8	1979	1,181,000	1.00	18.4
46,603	1.04	16.9	1980	1,174,000	0.98	17.3
45,461	1.05	16.8	1981	1,180,000	0.97	18.7
41,156	1.04	15.4	1982	1,108,000	0.94	17.6
38,712	1.02	14.7	1983	1,091,000	0.94	17.4
37,629	1.00	15.1	1984	1,081,000	0.92	17.2
38,673	1.00	15.8	1985[1]	---	---	---

[1] There were 2,362 records on which the number of children under 18 years of age was not stated, compared to 2,381 in 1984.

Table 3.18
Divorces and Annulments by Age of Husband and Wife
at Time of Decree, Michigan Occurrences, 1985

AGE	HUSBAND		WIFE	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Total	38,775	100.0	38,775	100.0
Under 20	71	0.2	417	1.1
20-24	2,932	7.6	4,974	12.8
25-29	6,801	17.5	7,671	19.8
30-34	6,816	17.6	6,558	16.9
35-39	5,757	14.8	5,113	13.2
40-44	3,988	10.3	3,302	8.5
45-49	2,417	6.2	1,731	4.5
50-54	1,409	3.6	921	2.4
55-59	955	2.5	549	1.4
60-64	510	1.3	309	0.8
65-69	276	0.7	170	0.4
70-74	115	0.3	69	0.2
75+	109	0.3	41	0.1
Unknown	6,619	17.1	6,950	17.9
Median Age	34 Years 6 Months	000	32 Years 0 Months	000

---

[1] Based on records with known age only.

Table 3.19

Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1985

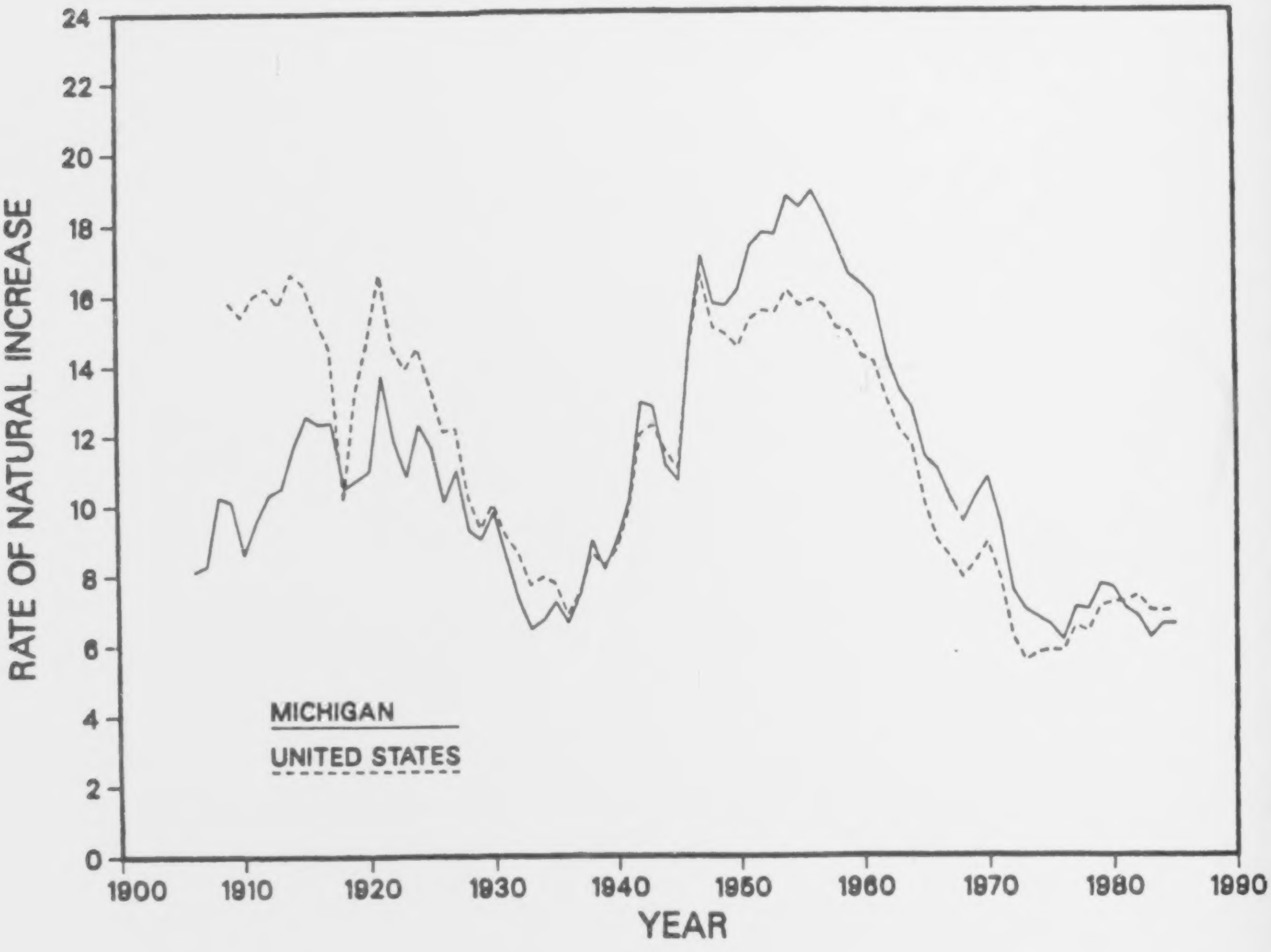
DURATION IN YEARS	AT TIME OF SEPARATION		AT TIME OF DISSOLUTION	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Less Than 1	3,992	10.3	1,174	3.0
1-4	12,502	32.2	12,042	31.1
5-9	8,032	20.7	10,378	26.8
10-14	4,791	12.4	6,023	15.5
15-19	3,099	8.0	3,957	10.2
20-24	1,749	4.5	2,436	6.3
25-29	856	2.2	1,268	3.3
30-34	422	1.1	653	1.7
35-39	194	0.5	306	0.8
40-44	52	0.1	132	0.3
45-49	12	0.0	39	0.1
50+	14	0.0	22	0.1
Unknown	3,060	7.9	345	0.9
Total	38,775	100.0	38,775	100.0
Median Duration	5 Years 7 Months	000	7 Years 4 Months	000

[1] Based on records with known duration only.

REFERENCE APPENDIX

SECTION IV

FIGURE 4.1
RATE OF NATURAL INCREASE,[1] MICHIGAN, 1906-1985,
AND THE UNITED STATES,[2] 1909-1985



[1] Excess of live births over deaths per 1,000 population.

[2] Rates for the United States for 1909-1932 are based on death rates from the death-registration states and estimated birth rates for the United States, adjusted for under-registration. For 1933-1959 rates are based on registered deaths in the United States and births adjusted for under-registration. After 1959 rates are based on registered births and deaths.

TABLE 4.1

POPULATION, LIVE BIRTHS, DEATHS (ALL AGES, INFANT, NEONATAL, POSTNEONATAL, PERINATAL, FETAL, AND MATERNAL), MARRIAGES AND DIVORCES, MICHIGAN, 1900-1985

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[1]	28-364 Days	Peri-natal	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866				1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319				1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949				1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488				1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419				1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054				2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952				2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906				2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697				2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443				2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998				2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131				2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985				2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659				2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431				3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943				3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415				3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916				3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197				3,686	709	33,260	5,493
1919	3,582,588	84,062	45,636	7,560				3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587				3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584				3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730				3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477				3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	2,969	6,791	3,703	636	49,788	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	3,476	6,667	3,670	629	46,276	9,650
1926	4,372,734	98,289	54,080	7,620	4,054	3,566	6,773	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	2,851	6,794	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	3,067	6,594	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	2,828	6,613	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	2,589	6,518	3,714	597	29,482	10,639
1931	4,883,703	90,547	49,068	5,187	3,084	2,103	5,643	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,830	2,798	1,832	5,210	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	1,503	4,906	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	1,660	4,781	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	1,620	4,832	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	1,832	4,726	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	1,674	4,919	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	1,585	4,984	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	1,358	4,706	2,572	280	37,725	11,589
1940	5,256,106	99,106	52,092	4,022	2,629	1,393	4,749	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	1,479	4,991	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	1,515	5,581	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	1,825	5,563	3,213	237	44,385	15,259

TABLE 4.1 (continued)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1944	5,377,329	113,586	54,016	4,326	2,784	1,542	5,140	2,874	198	41,678	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	1,338	4,906	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	1,218	5,978	3,168	163	78,808	29,158
1947	6,069,000	160,275	56,807	5,055	3,677	1,378	6,583	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	1,265	5,968	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	1,288	5,746	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	1,171	5,781	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	1,209	6,088	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	1,275	6,266	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,369	1,339	6,188	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	1,235	6,415	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	1,166	6,381	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	1,251	6,655	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	1,209	6,668	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	1,191	6,516	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	1,172	6,250	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	1,122	6,247	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	1,129	5,875	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	1,116	5,669	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	1,041	5,407	2,540	71	68,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	972	5,293	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	1,027	5,139	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	921	4,909	2,295	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	881	4,693	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	821	4,476	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	806	4,488	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,671	821	4,522	2,060	29	91,933	29,934
1971	8,972,000	162,244	77,395	3,157	2,412	745	4,139	1,923	32	92,134	31,790
1972	9,025,000	146,854	79,210	2,801	2,115	686	3,700	1,765	35	94,447	35,505
1973	9,072,000	141,550	78,522	2,561	1,902	659	3,392	1,682	26	94,486	37,128
1974	9,109,000	137,414	76,143	2,387	1,734	653	2,947	1,438	19	88,023	39,940[3]
1975	9,108,000	133,931	74,522	2,205	1,563	642	2,673	1,356	16	82,856	40,782
1976	9,117,000	131,378	75,801	1,978	1,424	554	2,495	1,264	14	82,753	43,101
1977	9,157,000	138,416	74,144	1,945	1,367	578	2,452	1,284	11	86,088	43,036
1978	9,202,000	138,802	74,773	1,931	1,281	650	2,302	1,201	15	88,333	45,029
1979	9,249,000	144,452	73,480	1,921	1,295	626	2,285	1,175	11	89,450	44,242
1980	9,262,078	145,162	74,991	1,851	1,284	567	2,235	1,135	16	86,898	45,047
1981	9,270,000	140,579	75,818	1,851	1,281	570	2,151	1,040	7	85,252	43,167
1982	9,227,327	137,950	75,536	1,672	1,202	470	1,988	953	11	82,633	39,739
1983	9,155,480	133,026	76,639	1,573	1,067	506	1,753	843	6	78,910	37,991
1984	9,074,622	135,782	76,401	1,595	1,100	495	1,776	821	4	80,810	37,563
1985	9,088,341	138,052	78,635	1,575	1,071	504	1,764	850	9	79,022	38,775

[1] -1971-1979 population estimates have been revised by the U.S. Census Bureau

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate

TABLE 4.2
LIVE BIRTH RATES, DEATH RATES (ALL AGES, INFANT, NEONATAL, POSTNEONATAL PERINATAL, AND MATERNAL), FETAL DEATH RATIOS, MARRIAGE AND DIVORCE RATES, MICHIGAN, 1900-1985[1]

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates for deaths under 1 year, under 28 days, and from 28-364 days per 1,000 live births. Maternal mortality rate per 10,000 live births. Perinatal mortality rate per 1,000 live births and fetal deaths.)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1				30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2				34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6				39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0				39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1				40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2				43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7				40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0				39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8				41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7				39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8				39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4				41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4				41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8				40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8				40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6				41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7				42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5				39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8				40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9				40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1				40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0				38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7				42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4				39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	30.2	66.7	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	35.1	64.9	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	36.3	66.3	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	28.5	65.5	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	31.5	65.2	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	28.7	64.6	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	26.2	63.5	37.6	60.4	12.2	4.4
1931	18.5	10.1	57.3	34.1	23.2	60.2	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	21.5	59.0	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	18.7	58.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	19.8	55.2	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	18.5	53.6	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	20.7	51.9	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	18.3	52.2	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	16.3	50.0	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	14.4	48.5	27.2	29.6	14.5	4.4
1940	18.9	9.9	40.6	26.5	14.1	46.7	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	13.8	45.3	25.8	27.7	18.8	4.9

TABLE 4.2 (continued)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1942	22.4	9.5	37.1	24.9	12.2	43.9	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	14.5	43.2	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	13.6	44.1	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	12.0	42.9	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	8.8	42.2	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	8.6	40.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	8.2	38.0	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	8.2	36.0	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	7.3	35.4	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	7.0	34.7	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	7.2	34.6	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	7.3	33.2	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	6.4	32.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	5.9	32.0	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	6.1	31.8	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	5.8	31.5	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	5.9	31.7	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	5.9	31.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	5.8	31.5	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	5.9	30.0	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	6.1	30.6	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	5.8	29.8	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	5.6	29.8	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	6.2	30.4	14.9	3.2	19.8	5.0
1966	19.9	9.0	23.6	17.1	5.6	29.2	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	5.4	28.4	13.5	3.2	19.6	5.5
1968	18.3	8.9	21.6	16.5	5.2	27.8	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	4.9	26.7	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	15.6	4.8	26.0	12.0	1.7	20.7	6.7
1971	18.1	8.6	19.5	14.9	4.6	25.2	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	4.7	24.9	12.0	2.4	20.9	7.9
1973	15.6	8.7	18.1	13.4	4.7	23.7	11.9	1.8	20.8	8.2
1974	15.1	8.4	17.4	12.6	4.8	21.2	10.5	1.4	19.3	8.8[3]
1975	14.7	8.2	16.5	11.7	4.8	19.8	10.1	1.2	18.2	9.0
1976	14.4	8.3	15.1	10.8	4.2	18.8	9.6	1.1	18.2	9.5
1977	15.1	8.1	14.1	9.9	4.2	17.6	9.3	0.8	18.8	9.4
1978	15.1	8.1	13.9	9.2	4.7	16.4	8.7	1.1	19.2	9.8
1979	15.6	7.9	13.3	9.0	4.3	15.7	8.1	0.8	19.3	9.6
1980	15.7	8.1	12.8	8.8	3.9	15.3	7.8	1.1	18.8	9.7
1981	15.2	8.2	13.2	9.1	4.1	15.2	7.4	0.5	18.4	9.3
1982	15.0	8.2	12.1	8.7	3.4	14.3	6.9	0.8	17.9	8.6
1983	14.5	8.4	11.8	8.0	3.8	13.1	6.3	0.5	17.2	8.3
1984	15.0	8.4	11.7	8.1	3.6	13.0	6.0	0.3	17.8	8.3
1985	15.2	8.7	11.4	7.8	3.7	12.8	6.2	0.7	17.4	8.5

[1] -1971-1979 birth, death, marriage and divorce rates have been recalculated using revised population estimates.

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate.

TABLE 4.3
NUMBER OF LIVE BIRTHS BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1985

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	354	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3,558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,093	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	125,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,608	46,363	25,971	11,565	2,906	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,332	208	20,522	60,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,980	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,296	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8

TABLE 4.3
NUMBER OF LIVE BIRTHS BY AGE OF MOTHER, MICHIGAN RESIDENTS, 1920-1985 (continued)

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,063	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,259	6,975	1,926	112	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	95	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26
1978	138,802	345	21,487	49,498	43,744	18,367	4,562	729	50	20
1979	144,452	355	21,239	51,319	46,084	19,962	4,720	715	41	17
1980	145,162	331	20,000	51,218	47,113	21,024	4,692	740	22	22
1981	140,579	300	18,397	47,737	46,527	22,178	4,701	695	34	10
1982	137,950	319	17,344	45,586	45,995	22,564	5,395	711	29	7
1983	133,026	328	16,589	42,034	45,065	22,505	5,669	791	38	7
1984	135,782	341	16,442	41,664	45,908	24,320	6,295	780	30	2
1985	138,052	352	16,279	41,125	47,049	25,491	6,864	851	36	5

[1] Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources:

1920-1923: Unpublished tables from the National Center for Health Statistics.
1924-1932: Bureau of the Census publication, Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States.
1933-1936: Unpublished tables from the National Center for Health Statistics.
1937-1949: Bureau of the Census publication, Vital Statistics of the United States series.
1950-1959: Department of Health Education and Welfare publication, Vital Statistics of the United States series.

TABLE 4.4
LIVE BIRTH RATES BY AGE OF MOTHER, MICHIGAN RESIDENTS, 1920-1985

(Live birth rates are per 1,000 women per year. Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	81.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	52.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5
1959	0.6	77.6	273.3	217.4	128.6	64.4	17.3	0.9	3,900.5

TABLE 4.4
LIVE BIRTHS BY AGE OF MOTHER, MICHIGAN RESIDENTS, 1920-1985 (continued)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	64.7	161.7	138.6	69.1	27.9	7.2	0.4	2,353.0
1972	1.1	63.7	137.6	124.1	58.6	22.8	5.9	0.4	2,071.0
1973	1.2	62.8	127.5	118.3	54.2	19.9	4.9	0.2	1,945.0
1974	1.1	58.5	121.9	115.7	51.5	16.3	4.1	0.2	1,846.5
1975	1.1	55.3	117.0	112.3	48.4	16.0	3.9	0.2	1,771.0
1976	0.9	51.1	111.6	113.0	46.9	15.0	3.2	0.2	1,709.5
1977	1.0	50.9	115.5	114.9	52.6	15.2	3.1	0.2	1,767.0
1978	0.8	48.3	112.7	112.6	54.0	16.3	3.0	0.2	1,739.5
1979	0.9	47.6	114.6	115.2	56.7	16.6	3.0	0.2	1,774.0
1980	0.8	44.8	113.1	115.6	58.4	16.4	3.1	0.1	1,761.5
1981	0.8	42.7	105.4	112.1	58.0	15.9	2.9	0.2	1,690.0
1982	0.9	39.2	98.0	107.6	59.2	18.4	3.1	0.1	1,632.5
1983	0.9	37.9	89.8	104.0	58.0	19.3	3.6	0.2	1,568.5
1984	1.0	38.0	88.7	104.6	61.7	21.4	3.6	0.1	1,595.5
1985	1.0	37.5	87.4	107.1	64.5	23.3	4.0	0.2	1,625.0

[1] -Number of live births to women aged 45 and over per 1,000 women 45-49 years of age.

SOURCE: Population figures used for 1920-1970 rates are from General Population Characteristics, Michigan, USBC, 1971, with arithmetic extrapolation between census years. For 1971-1985 population source, see Technical Notes.,

TABLE 4.5
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1985

Year	DIPHTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPOX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB' (ALL FORMS)	MENINGOCOCCAL' INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	2,706	6,734	694	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2,993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3,670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3,510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	26,58	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	5,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1923	7,725	12,868	2,311	982	7,617	30,041		5,471	186	39	10,480	9,597	235
1924	6,011	12,989	4,527	782	4,364	18,290		5,570	157	647	13,000	10,490	183
1925	3,925	12,303	784	962	7,576	10,332		5,785	128	99	14,668	10,660	104
1926	5,377	12,681	549	583	8,776	39,946		5,387	96	107	14,872	10,707	103
1927	4,575	11,011	1,467	581	6,818	8,303		5,406	138	282	15,713	9,318	107
1928	3,724	10,486	1,335	390	9,700	27,039		5,885	276	77	15,323	8,592	100
1929	4,618	14,245	2,410	310	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1930	3,206	11,174	2,375	504	7,937	28,129		5,128	901	208	16,538	8,554	163
1931	1,831	13,023	915	424	11,448	6,212		6,132	293	1,137	14,662	7,843	170
1932	1,188	15,255	222	513	13,091	42,129		7,103	129	112	11,969	6,963	140
1933	1,152	16,419	46	453	11,720	21,654		6,624	86	93	7,691	6,447	85
1934	614	19,238	49	486	11,255	6,528		5,264	53	230	6,483	6,188	132
1935	645	11,849	16	355	13,427	79,061		4,642	113	614	6,416	6,372	110
1936	661	12,650	32	287	14,287	2,453		5,157	120	152	6,401	6,460	133
1937	842	24,798	152	241	11,426	6,154		6,469	87	421	8,708	7,072	244
1938	619	18,362	274	285	14,563	79,400		6,335	69	59	14,684	7,046	341
1939	452	15,836	371	177	8,997	12,948		6,119	46	904	13,144	6,364	286
1940	264	10,366	76	120	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1941	242	8,756	114	147	16,512	70,748		5,371	49	270	11,370	8,767	359
1942	243	7,503	17	74	11,602	8,569		5,720	66	162	12,461	8,753	276
1943	281	5,044	18	115	12,091	51,764		6,546	757	255	15,933	9,526	260
1944	419	8,963	10	78	4,049	26,711		6,419	857	884	17,288	11,987	185

TABLE 4.5 (continued)

Year	DIPH-THERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-POX	TYPHOID FEVER	WHOOP-ING COUGH	MEASLES	HEPATI-TIS, ALL TYPES	TB[2] (ALL FORMS)	MENIN-[1] GOCOC-CAL INFEC-TIONS	POLIO	SYPHI-LIS	GONOR-RHEA	CHAN-CROID
1945	630	9,304	16	59	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1946	385	5,977	3	85	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1947	238	4,834	1	77	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1948	126	5,934	-	49	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1949	119	8,852	-	48	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1950	84	4,665	-	43	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1951	48	8,181	-	33	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1952	45	8,325	-	53	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1953	12	5,885	-	31	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1954	57	5,142	-	30	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1955	59	5,880	-	24	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1956	220	7,349	-	56	1,907	41,966	814	5,515	182	656	4,785	9,598	52
1957	130	7,193	-	12	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1958	6	5,380	-	18	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1959	3	9,452	-	8	3,001	12,234	1,136	4,743	141	448	3,421	8,033	136
1960	9	9,287	-	14	1,129	36,161	2,113	4,127	169	88	3,647	8,372	112
1961	3	8,347	-	7	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1962	4	8,116	-	12	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1963	5	11,964	-	14	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1964	1	17,228	-	13	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1965	-	14,622	-	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1966	1	13,862	-	7	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1967	1	13,269	-	8	1,058	1,048	1,915	2,951	76	3	5,581	17,088	78
1968	-	10,101	-	1	429	353	2,356	2,618	94	3	5,351	18,153	105
1969	-	9,763	-	6	192	401	3,359	2,133	114	1	3,809	18,534	103
1970	-	11,863	-	14	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1971	1	11,244	-	10	140	2,659	4,828	1,789	64	-	4,800	22,260	93
1972	1	13,304	-	7	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1973	-	24,467	-	14	86	4,552	3,872	1,473	54	-	4,375	31,086	217
1974	-	31,802	-	11	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1975	1	23,777	-	10	98	3,253	2,877	1,271	76	-	1,638	32,583	98
1976	-	24,937	-	10	70	6,139	2,645	1,349	65	1	1,089	34,836	37
1977	-	31,047	-	13	73	1,392	2,686	1,290	51	-	1,185	36,794	61
1978	-	29,759	-	15	47	8,006	2,174	1,260	87	1	1,133	36,647	49
1979	-	30,182	-	14	102	869	2,036	1,052	79	-	1,260	36,624	59
1980	1	24,808	-	12	38	250	1,799	1,168	77	1	1,163	34,951	50
1981	-	13,529	-	26	30	34	1,700	931	93	-	1,053	32,524	32
1982	-	12,302	-	14	34	64	1,745	864	81	-	921	32,848	26
1983	-	11,157	-	10	43	8	1,788	790	91	-	731	34,065	19
1984	-	---	-	9	31	464	1,728	661	90	-	749	34,839	---
1985	-	---	-	8	54	60	1,490	535	107	-	656	33,516	---

[1]-Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2]-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.6
CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1985
(Rates per 100,000 population)

Year	DIPHTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-PX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB' (ALL FORMS)	MENIN-' GOCOCCAL INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	119.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	243.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.2	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	384.4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,301.1		98.8	0.9	5.0	209.1	161.2	6.6
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8

TABLE 4.6 (continued)

Year	DIPH-THERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-PX	TYPHOID FEVER	WHOOP-ING COUGH	MEASLES	HEPATI-TIS, ALL TYPES	TB[2] (ALL FORMS)	MENIN-[1] GOCOC-CAL INFEC-TIONS	POLIO	SYPHI-LIS	GONOR-RHEA	CHAN-CROID
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.6
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	-	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	-	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	-	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	-	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	-	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	-	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	-	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	-	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	-	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	-	0.2	17.5	244.4	8.4	64.2	2.2	6.4	58.6	108.0	1.2
1958	0.1	68.4	-	0.2	15.7	526.9	8.7	71.0	2.9	15.0	54.2	109.6	2.3
1959	0.0	118.7	-	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.9	1.7
1960	0.1	118.7	-	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	-	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	-	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	-	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	-	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	-	178.3	-	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	-	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	-	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	-	116.4	-	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	-	111.8	-	0.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	-	133.7	-	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.3	-	0.1	1.6	29.6	53.8	19.9	0.7	-	53.5	248.1	1.0
1972	0.0	147.4	-	0.1	1.3	26.1	47.9	18.1	0.6	0.0	54.2	274.2	1.9
1973	-	269.7	-	0.2	0.9	50.2	42.7	16.2	0.6	-	48.2	342.7	2.4
1974	-	349.1	-	0.1	1.1	26.0	39.5	15.7	0.6	0.0	29.9	352.0	1.9
1975	0.0	261.1	-	0.1	1.1	35.7	31.6	14.0	0.8	-	18.0	357.7	1.1
1976	-	273.5	-	0.1	0.8	67.3	29.0	14.3	0.7	0.0	11.9	382.1	0.4
1977	-	339.1	-	0.1	0.8	15.2	29.3	14.1	0.6	-	12.9	401.8	0.7
1978	-	323.4	-	0.2	0.5	87.0	23.6	13.7	0.9	0.0	12.3	398.3	0.5
1979	-	326.3	-	0.2	1.1	9.4	22.0	11.4	0.9	-	13.6	396.0	0.6
1980	0.0	267.8	-	0.1	0.4	2.7	19.4	12.6	0.8	0.0	12.6	377.8	0.5
1981	-	145.9	-	0.3	0.3	0.4	18.3	10.0	1.0	-	11.4	350.9	0.3
1982	-	133.3	-	0.2	0.4	0.7	18.9	9.4	0.9	-	10.0	356.0	0.3
1983	-	121.9	-	0.1	0.5	0.1	19.5	8.6	1.0	-	8.0	372.1	0.2
1984	-	---	-	0.1	0.3	5.1	19.0	7.3	1.0	-	8.3	383.9	---
1985	-	---	-	0.1	0.6	0.7	16.4	5.9	1.2	-	7.2	368.8	---

[1] -Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2] -Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.7
NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1985
(Rates per 100,000 population)

Year	Diphtheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Polio-myelitis		Syphilis[1]		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	515	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.5			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8 2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,285	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,837	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4 9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	-	-	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	-	-	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	38	0.8	171	3.4	-	-	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	-	-	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	-	-	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	-	-	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	-	-	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	65	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	0.0
1942	24	0.4	23	0.4	-	-	5	0.1	72	1.3	8	0.1	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1
1943	21	0.4	11	0.2	-	-	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0

Table 4.7 (continued)

Year	Diphtheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Polio-myelitis		Syphilis[1]		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	-	-	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	-	-	6	0.1	44	0.8	47	0.8	1,645	28.8	1,843	32.3	89	1.6	547	9.6	-	-
1947	23	0.4	6	0.1	-	-	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	-	-	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	-	-
1949	11	0.2	4	0.1	-	-	1	0.0	22	0.3	33	0.5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	-	-
1950	2	0.0	1	0.0	-	-	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	-	-	-	-	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	-	-	-	-	-	-	8	0.1	17	0.3	689	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	-	-	-	-	11	0.2	16	0.2	536	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	-	-	-	-	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	-	-	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	-	-	-	-	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	-	-	-	-	-	-	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	-	-	-	-	-	-	-	-	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	-	-	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	-	-	-	-	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	-	-	-	-	2	0.0	13	0.2	307	3.9	332	4.2	-	-	71	0.3	7	0.1
1962	2	0.0	1	0.0	-	-	-	-	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	-	-	-	-	-	-	-	-	-	-	27	0.3	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	-	-	-	-	-	-	-	-	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	-	-	-	-	-	-	-	-	-	-	5	0.1	261	3.2	285	3.5	-	-	65	0.8	2	0.0
1966	1	0.0	-	-	-	-	-	-	-	-	7	0.1	284	3.4	301	3.6	-	-	63	0.8	-	-
1967	-	-	-	-	-	-	-	-	-	-	3	0.0	206	2.4	226	2.6	-	-	44	0.5	1	0.0
1968	-	-	1	0.0	-	-	-	-	-	-	-	-	203	2.3	262	3.0	2	0.0	29	0.3	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	147	1.7	201	2.3	-	-	26	0.3	1	0.0
1970	-	-	2	0.0	-	-	-	-	-	-	1	0.0	134	1.5	180	2.0	-	-	17	0.2	2	0.0
1971	-	-	4	0.0	-	-	-	-	-	-	-	-	122	1.4	173	1.9	-	-	18	0.2	-	-
1972	-	-	1	0.0	-	-	1	0.0	-	-	-	-	111	1.2	157	1.7	1	0.0	12	0.1	-	-
1973	-	-	-	-	-	-	-	-	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	-	-
1974	-	-	1	0.0	-	-	-	-	2	0.0	-	-	109	1.2	142	1.6	3	0.0	11	0.1	-	-
1975	-	-	-	-	-	-	-	-	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	-	-	-	-	-	-	-	-	-	-	-	-	80	0.9	102	1.1	6	0.1	11	0.1	-	-
1977	-	-	1	0.0	-	-	-	-	-	-	-	-	67	0.7	97	1.1	6	0.1	3	0.0	-	-
1978	-	-	-	-	-	-	-	-	1	0.0	1	0.0	60	0.7	80	0.9	2	0.0	5	0.1	-	-
1979	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	62	0.7	2	0.0	9	0.1	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-	51	0.6	61	0.7	-	-	1	0.0	1	0.0
1981	-	-	-	-	-	-	1	0.0	-	-	-	-	41	0.4	53	0.6	-	-	4	0.0	1	0.0
1982	-	-	-	-	-	-	-	-	-	-	1	0.0	30	0.3	41	0.4	-	-	-	-	-	-
1983	-	-	1	0.0	-	-	-	-	-	-	1	0.0	28	0.3	39	0.4	-	-	3	0.0	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	59	0.7	-	-	2	0.0	-	-
1985	-	-	-	-	-	-	-	-	-	-	-	-	37	0.4	46	0.5	-	-	3	0.0	-	-

[1]-From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.

[2]-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.8
NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES, MICHIGAN RESIDENTS, 1900-1985
(Rates per 100,000 population)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease & Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6				
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9				
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5				
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7				
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7				
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4				
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7				
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0				
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7				
1909	4,354	157.1	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7				
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	282	10.0		
1911	4,639	160.2	2,142	74.0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4				
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8				
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5				
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2				
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7				
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2				
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6				
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0				
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9				
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9				
1921	6,176	163.1	3,373	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	261	6.9		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	267	6.8		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	251	6.2		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	256	6.2		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	319	7.5		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	326	7.5		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	340	7.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	373	8.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	361	7.6		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	329	6.8	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	365	7.5	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	386	7.8	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	354	7.1	966	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	378	7.5	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	368	7.3	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	446	8.8	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	430	8.4	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	424	8.2	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	387	7.4	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	468	8.9	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	450	8.3	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	66.5	1,368	24.7	1,448	26.1	2,349	42.4	535	9.7	1,015	18.3
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	518	9.6	1,092	20.3
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	471	8.8	980	18.2
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	535	9.8	970	17.8

Table 4.8, 1900-1985 (continued)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease & Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	554	9.7	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	697	11.5	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	771	12.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	730	11.5	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	616	9.7	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	569	8.7	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	599	8.9	1,294	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	715	10.4	1,270	18.5
1954	22,362	318.4	10,105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	677	9.6	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,213	58.2	2,129	29.4	1,415	19.6	1,538	21.3	805	11.1	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	788	10.5	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	861	11.0	1,218	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	818	10.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	815	10.2	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	840	10.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	858	10.9	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	859	10.8	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	958	11.9	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	995	12.3	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	1,068	13.0	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	1,152	13.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	1,240	14.4	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	1,259	14.5	1,262	14.5
1969	29,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,579	29.5	2,188	25.1	2,229	25.5	1,430	16.4	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.9	2,309	26.0	2,180	24.6	2,004	22.6	1,558	17.6	1,174	13.2
1971	30,095	335.4	13,594	151.5	7,826	87.2	4,426	49.3	2,274	25.3	2,103	23.4	1,981	22.1	1,657	18.5	1,187	13.2
1972	30,865	342.0	14,045	155.6	7,999	88.6	4,566	50.6	2,450	27.1	2,222	24.6	2,009	22.3	1,778	19.7	1,153	12.8
1973	29,944	330.1	14,220	156.7	7,987	88.0	4,630	51.0	2,389	26.3	2,074	22.9	1,958	21.6	1,711	18.9	1,142	12.6
1974	29,220	320.8	14,241	156.3	7,645	83.9	4,211	46.2	1,929	21.2	1,940	21.3	1,637	18.0	1,650	18.1	1,187	13.0
1975	28,298	310.7	14,445	158.6	7,262	79.7	4,002	43.9	1,841	20.2	1,819	20.0	1,690	18.6	1,574	17.3	1,119	12.3
1976	29,233	320.6	14,880	163.2	7,354	80.7	3,912	42.9	1,993	21.9	1,719	18.9	1,812	19.9	1,486	16.3	1,207	13.2
1977	28,895	315.6	15,125	165.2	6,818	74.5	3,945	43.1	1,993	21.8	1,615	17.6	1,639	17.9	1,356	14.8	1,164	12.7
1978	29,406	319.6	15,249	165.7	6,520	70.9	3,970	43.1	2,138	23.2	1,551	16.9	1,828	19.9	1,351	14.7	1,146	12.5
1979	29,296	316.7	15,409	166.6	6,067	65.6	3,839	41.5	1,967	21.3	1,449	15.7	1,454	15.7	1,367	14.8	1,173	12.7
1980	29,790	321.6	15,828	170.9	6,164	66.6	3,627	39.2	1,880	20.3	1,467	15.8	1,712	18.5	1,362	14.7	1,254	13.5
1981	30,172	325.5	16,142	174.1	6,121	66.0	3,390	36.6	1,727	18.6	1,487	16.0	1,644	17.7	1,253	13.5	1,270	13.7
1982	30,099	326.2	16,566	179.5	5,839	63.3	3,113	33.7	1,555	16.9	1,347	14.6	1,665	18.0	1,244	13.5	1,284	13.9
1983	30,412	332.2	16,785	183.3	5,721	62.5	2,947	32.2	1,419	15.5	1,470	16.1	2,007	21.9	1,250	13.7	1,269	13.9
1984	30,100	331.7	16,907	186.3	5,631	62.1	3,049	33.6	1,630	18.0	1,476	16.3	2,018	22.2	1,194	13.2	1,142	12.6
1985	30,618	336.9	17,281	190.1	5,528	60.8	3,228	35.5	1,676	18.4	1,387	15.3	2,193	24.1	1,256	13.8	1,173	12.9

[1] -Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.

[2] -Cerebrovascular disease was called Vascular Lesions Affecting Central Nervous System prior to 1968.

[3] -Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.

[4] -Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning 1923.

[5] -Chronic liver disease and cirrhosis was called cirrhosis of the liver prior to 1979.

[6] -Atherosclerosis was called General Arteriosclerosis prior to 1968 and was called Arteriosclerosis from 1968-1978.

Table 4.9
Selected Vital Statistics By County, Michigan Residents, 1985

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES'	DIVORCES'
Michigan	9,088,341	138.052	9.403	78,635	1,575	1,071	1,764	850	79,022	38,775
Alcona	9,983	108	5	145	1	0	0	0	91	32
Alger	8,766	114	6	101	1	1	1	0	79	26
Allegan	85,282	1.405	64	632	11	7	11	7	654	344
Alpena	31,105	419	24	315	3	2	4	2	311	133
Antrim	16,752	256	14	202	2	0	1	1	159	75
Arenac	15.011	198	12	158	1	1	1	0	104	46
Baraga	8,200	114	5	107	0	0	1	1	61	26
Barry	46,895	726	43	398	7	4	5	4	401	209
Bay	115,327	1,692	105	991	18	16	31	16	1,025	451
Benzie	11,153	179	7	145	1	1	1	0	111	54
Berrien	162,837	2,518	189	1,690	26	20	39	24	1,547	727
Branch	38,806	672	47	385	7	2	3	1	385	258
Calhoun	136,491	1,990	144	1,269	24	14	23	11	1,077	679
Cass	48,420	672	47	436	9	4	6	3	366	254
Charlevoix	19,750	310	19	226	5	1	2	1	216	162
Cheboygan	20,661	306	16	244	0	0	6	6	184	106
Chippewa	29,058	394	28	282	3	3	4	1	248	108
Clare	24.721	369	17	288	4	1	4	3	193	101
Clinton	55,341	836	57	380	9	7	11	5	408	236
Crawford	9,906	175	11	104	0	0	0	0	138	40
Delta	38,840	543	31	406	7	7	6	1	339	123
Dickinson	26,523	385	15	288	2	1	2	1	252	130
Eaton	89,923	1,326	81	558	17	9	11	4	733	405
Emmet	23.699	379	16	248	3	3	5	3	248	115
Genesee	433,922	6,817	495	3,349	90	64	79	29	4,145	2,222
Gladwin	21,392	292	17	240	5	2	5	3	194	43
Gogebic	19.040	205	13	253	1	1	5	4	130	58
Gd. Traverse	57,602	943	46	485	8	4	7	4	649	343
Gratiot	39,442	574	29	402	13	7	14	7	383	162
Hillsdale	41,843	646	25	381	8	5	7	3	353	202
Houghton	37,801	445	11	441	2	2	2	0	234	98
Huron	36,302	550	22	380	1	0	2	2	316	99
Ingham	273,205	4,420	292	1,711	52	38	62	28	2,901	1,320
Ionia	52,763	901	61	417	14	8	15	8	498	243
Iosco	30,331	597	29	288	8	2	3	1	292	166
Iron	14,129	140	5	210	3	2	4	2	94	53
Isabella	54,158	749	39	333	7	3	7	4	536	154
Jackson	143,746	2,164	127	1,232	23	19	28	14	1,226	683
Kalamazoo	215,462	3,296	182	1,539	35	24	46	26	2,052	1,084
Kalkaska	11,627	230	11	96	2	2	1	0	220	66
Kent	467,764	8,871	492	3,449	75	45	104	64	4,804	2,087

Table 4.9, Selected Vital Statistics By County, Michigan Residents, 1985 (continued)

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES'	DIVORCES'
Keweenaw	2,136	19	1	39	2	2	2	0	17	5
Lake	8,535	129	8	129	3	0	1	1	63	0
Lapeer	69,319	1,039	49	459	12	7	9	4	619	360
Leelanau	14,728	226	4	146	1	0	3	3	125	43
Lenawee	88,443	1,288	65	705	12	6	17	12	682	411
Livingston	101,847	1,414	74	676	9	4	11	9	906	580
Luce	5,946	78	6	94	3	3	2	0	54	28
Mackinac	10,334	136	5	118	0	0	0	0	107	49
Macomb	689,681	9,485	506	5,419	91	66	105	49	6,582	3,193
Manistee	22,323	262	19	249	5	4	8	4	179	73
Marquette	72,059	1,174	68	535	12	11	19	9	702	322
Mason	26,362	348	28	320	1	1	5	4	227	117
Mecosta	37,542	483	28	271	8	6	3	0	257	117
Menominee	25,866	325	16	267	3	0	2	2	238	0
Midland	75,193	1,028	48	453	4	3	10	7	667	276
Missaukee	10,770	197	13	95	0	0	2	2	95	43
Monroe	130,709	1,912	90	991	13	8	11	5	996	508
Montcalm	50,300	776	38	403	9	7	8	2	536	213
Montmorency	7,778	91	4	128	1	1	2	1	57	29
Muskegon	156,658	2,585	166	1,420	24	15	23	12	1,495	791
Newaygo	36,801	635	43	318	4	3	7	4	326	158
Oakland	1,014,102	14,455	854	7,757	154	119	209	100	9,616	4,870
Oceana	22,477	371	24	184	3	1	3	2	213	98
Ogemaw	17,424	253	9	194	1	1	3	3	170	66
Ontonagon	9,213	107	7	125	0	0	0	0	70	21
Osceola	20,206	294	11	188	0	0	1	1	180	0
Oscoda	6,967	113	5	85	1	1	1	0	56	18
Otsego	15,373	247	11	167	2	2	2	0	164	47
Ottawa	167,185	2,842	131	1,075	22	14	24	13	1,466	576
Presque Isle	13,905	170	10	143	2	1	2	1	93	35
Roscommon	18,418	215	19	222	0	0	4	4	145	129
Saginaw	216,914	3,393	281	1,727	53	38	61	25	1,906	962
St. Clair	138,636	2,108	130	1,265	23	16	20	8	1,269	636
St. Joseph	58,532	976	64	523	9	4	12	9	532	297
Sanilac	39,965	573	36	427	0	0	3	3	301	177
Schoolcraft	8,385	109	7	112	0	0	1	1	68	19
Shiawassee	68,493	1,026	51	489	8	4	9	5	594	282
Tuscola	55,009	802	39	434	11	8	9	1	447	199
Van Buren	66,580	1,013	62	608	13	9	16	10	515	316
Washtenaw	262,579	3,845	252	1,460	41	23	47	27	2,450	1,239
Wayne	2,174,338	33,141	3,197	22,720	499	344	503	205	15,221	7,419
Wexford	26,331	439	25	274	8	7	9	2	259	130
Co. Not Stated	0	4	0	17	0	0	6	6	0	0

' By county of occurrence rather than county of residence.

Table 4.10 Selected Vital Statistics Rates By County, Michigan Residents, 1985

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS'	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES'	DIVORCES'
Michigan	15.2	68.1	8.7	11.4	7.8	12.7	6.1	17.4	8.5
Alcona	10.8	46.3	14.5	9.3	0.0	0.0	0.0	18.2	6.4
Alger	13.0	52.6	11.5	8.8	8.8	8.8	0.0	18.0	5.9
Allegan	16.5	45.6	7.4	7.8	5.0	7.8	5.0	15.3	8.1
Alpena	13.5	57.3	10.1	7.2	4.8	9.5	4.8	20.0	8.6
Antrim	15.3	54.7	12.1	7.8	0.0	3.9	3.9	19.0	9.0
Arenac	13.2	60.6	10.5	5.1	5.1	5.1	0.0	13.9	6.1
Baraga	13.9	43.9	13.0	0.0	0.0	8.7	8.7	14.9	6.3
Barry	15.5	59.2	8.5	9.6	5.5	6.8	5.5	17.1	8.9
Bay	14.7	62.1	8.6	10.6	9.5	18.1	9.4	17.8	7.8
Benzie	16.0	39.1	13.0	5.6	5.6	5.6	0.0	19.9	9.7
Berrien	15.5	75.1	10.4	10.3	7.9	15.3	9.4	19.0	8.9
Branch	17.3	69.9	9.9	10.4	3.0	4.5	1.5	19.8	13.3
Calhoun	14.6	72.4	9.3	12.1	7.0	11.5	5.5	15.8	9.9
Cass	13.9	69.9	9.0	13.4	6.0	8.9	4.4	15.1	10.5
Charlevoix	15.7	61.3	11.4	16.1	3.2	6.4	3.2	21.9	16.4
Cheboygan	14.8	52.3	11.8	0.0	0.0	19.2	19.2	17.8	10.3
Chippewa	13.6	71.1	9.7	7.6	7.6	10.1	2.5	17.1	7.4
Clare	14.9	46.1	11.7	10.8	2.7	10.8	8.1	15.6	8.2
Clinton	15.1	68.2	6.9	10.8	8.4	13.1	5.9	14.7	8.5
Crawford	17.7	62.9	10.5	0.0	0.0	0.0	0.0	27.9	8.1
Delta	14.0	57.1	10.5	12.9	12.9	11.0	1.8	17.5	6.3
Dickinson	14.5	39.0	10.9	5.2	2.6	5.2	2.6	19.0	9.8
Eaton	14.7	61.1	6.2	12.8	6.8	8.3	3.0	16.3	9.0
Emmet	16.0	42.2	10.5	7.9	7.9	13.1	7.9	20.9	9.7
Genesee	15.7	72.6	7.7	13.2	9.4	11.5	4.2	19.1	10.2
Gladwin	13.6	58.2	11.2	17.1	6.8	16.9	10.2	18.1	4.0
Gogebic	10.8	63.4	13.3	4.9	4.9	23.9	19.1	13.7	6.1
Gd. Traverse	16.4	48.8	8.4	8.5	4.2	7.4	4.2	22.5	11.9
Gratiot	14.6	50.5	10.2	22.6	12.2	24.1	12.0	19.4	8.2
Hillsdale	15.4	38.7	9.1	12.4	7.7	10.8	4.6	16.9	9.7
Houghton	11.8	24.7	11.7	4.5	4.5	4.5	0.0	12.4	5.2
Huron	15.2	40.0	10.5	1.8	0.0	3.6	3.6	17.4	5.5
Ingham	16.2	66.1	6.3	11.8	8.6	13.9	6.3	21.2	9.7
Ionia	17.1	67.7	7.9	15.5	8.9	16.5	8.8	18.9	9.2
Iosco	19.7	48.6	9.5	13.4	3.4	5.0	1.7	19.3	10.9
Iron	9.9	35.7	14.9	21.4	14.3	28.2	14.1	13.3	7.5
Isabella	13.8	52.1	6.1	9.3	4.0	9.3	5.3	19.8	5.7
Jackson	15.1	58.7	8.6	10.6	8.8	12.9	6.4	17.1	9.5
Kalamazoo	15.3	55.2	7.1	10.6	7.3	13.8	7.8	19.0	10.1
Kalkaska	19.8	47.8	8.3	8.7	8.7	4.3	0.0	37.8	11.4
Kent	19.0	55.5	7.4	8.5	5.1	11.6	7.2	20.5	8.9
Keweenaw	8.9	52.6	18.3	105.3	105.3	105.3	0.0	15.9	4.7

Selected Vital Statistics Rates By County, Michigan Residents, 1985 (continued)

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[2]	DIVORCES[2]
Lake	15.1	62.0	15.1	23.3	0.0	7.7	7.7	14.8	0.0
Lapeer	15.0	47.2	6.6	11.5	6.7	8.6	3.8	17.9	10.4
Leelanau	15.3	17.7	9.9	4.4	0.0	13.1	13.1	17.0	5.8
Lenawee	14.6	50.5	8.0	9.3	4.7	13.1	9.2	15.4	9.3
Livingston	13.9	52.3	6.6	6.4	2.8	7.7	6.3	17.8	11.4
Luce	13.1	76.9	15.8	38.5	38.5	25.6	0.0	18.2	9.4
Mackinac	13.2	36.8	11.4	0.0	0.0	0.0	0.0	20.7	9.5
Macomb	13.8	53.3	7.9	9.6	7.0	11.0	5.1	19.1	9.3
Manistee	11.7	72.5	11.2	19.1	15.3	30.1	15.0	16.0	6.5
Marquette	16.3	57.9	7.4	10.2	9.4	16.1	7.6	19.5	8.9
Mason	13.2	80.5	12.1	2.9	2.9	14.2	11.4	17.2	8.9
Mecosta	12.9	58.0	7.2	16.6	12.4	6.2	0.0	13.7	6.2
Menominee	12.6	49.2	10.3	9.2	0.0	6.1	6.1	18.4	0.0
Midland	13.7	46.7	6.0	3.9	2.9	9.7	6.8	17.7	7.3
Missaukee	18.3	66.0	8.8	0.0	0.0	10.1	10.1	17.6	8.0
Monroe	14.6	47.1	7.6	6.8	4.2	5.7	2.6	15.2	7.8
Montcalm	15.4	49.0	8.0	11.6	9.0	10.3	2.6	21.3	8.5
Montmorency	11.7	44.0	16.5	11.0	11.0	21.7	10.9	14.7	7.5
Muskegon	16.5	64.2	9.1	9.3	5.8	8.9	4.6	19.1	10.1
Newaygo	17.3	67.7	8.6	6.3	4.7	11.0	6.3	17.7	8.6
Oakland	14.3	59.1	7.6	10.7	8.2	4.4	6.9	19.0	9.6
Oceana	16.5	64.7	8.2	8.1	2.7	8.0	5.4	19.0	8.7
Ogemaw	14.5	35.6	11.1	4.0	4.0	11.7	11.7	19.5	7.6
Ontonagon	11.6	65.4	13.6	0.0	0.0	0.0	0.0	15.2	4.6
Osceola	14.6	37.4	9.3	0.0	0.0	3.4	3.4	17.8	0.0
Oscoda	16.2	44.2	12.2	8.8	8.8	8.8	0.0	16.1	5.2
Otsego	16.1	44.5	10.9	8.1	8.1	8.1	0.0	21.3	6.1
Ottawa	17.0	46.1	6.4	7.7	4.9	8.4	4.6	17.5	6.9
Presque Isle	12.2	58.8	10.3	11.8	5.9	11.7	5.8	13.4	5.0
Roscommon	11.7	88.4	12.1	0.0	0.0	18.3	18.3	15.7	14.0
Saginaw	15.6	82.8	8.0	15.6	11.2	17.8	7.3	17.6	8.9
St. Clair	15.2	61.7	9.1	10.9	7.6	9.5	3.8	18.3	9.2
St. Joseph	16.7	65.6	8.9	9.2	4.1	12.2	9.1	18.2	10.1
Sanilac	14.3	62.8	10.7	0.0	0.0	5.2	5.2	15.1	8.9
Schoolcraft	13.0	64.2	13.4	0.0	0.0	9.1	9.1	16.2	4.5
Shiawassee	15.0	49.7	7.1	7.8	3.9	8.7	4.8	17.3	8.2
Tuscola	14.6	48.6	7.9	13.7	10.0	11.2	1.2	16.3	7.2
Van Buren	15.2	61.2	9.1	12.8	8.9	15.6	9.8	15.5	9.5
Washtenaw	14.6	65.5	5.6	10.7	6.0	12.1	7.0	18.7	9.4
Wayne	15.2	96.5	10.4	15.1	10.4	15.1	6.1	14.0	6.8
Wexford	16.7	56.9	10.4	18.2	15.9	20.1	4.5	19.7	9.9

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[1] Ratio per 1,000 live births.

[2] By county of occurrence rather than county of residence. Rate of persons per population rather than events per population.

Table 4.11
Live Births with Selected Risk Factors by County of Residence, Michigan Residents, 1985

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE¹		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Michigan	39,647	28.7	972	0.7	12,860	9.3	26,343	19.1	8,391	6.1	6,177	4.5
Alcona	50	46.3	3	2.8	8	7.4	21	19.4	2	1.9	6	5.6
Alger	29	25.4	1	0.9	11	9.6	18	15.8	9	7.9	7	6.1
Allegan	337	24.0	12	0.9	139	9.9	271	19.3	56	4.0	63	4.5
Alpena	207	49.4	4	1.0	34	8.1	83	19.8	12	2.9	13	3.1
Antrim	60	23.4	1	0.4	25	9.8	50	19.5	32	12.5	9	3.5
Arenac	57	28.8	2	1.0	23	11.6	60	30.3	11	5.6	12	6.1
Baraga	38	33.3	2	1.8	13	11.4	18	15.8	16	14.0	3	2.6
Barry	382	52.6	11	1.5	57	7.9	111	15.3	19	2.6	36	5.0
Bay	323	19.1	7	0.4	156	9.2	326	19.3	57	3.4	69	4.1
Benzie	33	18.4	4	2.2	15	8.4	30	16.8	22	12.3	8	4.5
Berrien	851	33.8	21	0.8	229	9.1	637	25.3	198	7.9	171	6.8
Branch	139	20.7	3	0.4	83	12.4	179	26.6	70	10.4	26	3.9
Calhoun	662	33.3	8	0.4	161	8.1	435	21.9	125	6.3	114	5.7
Cass	263	39.1	9	1.3	64	9.5	183	27.2	75	11.2	35	5.2
Charlevoix	98	31.6	1	0.3	26	8.4	59	19.0	21	6.8	8	2.6
Cheboygan	106	34.6	3	1.0	28	9.2	62	20.3	10	3.3	14	4.6
Chippewa	73	18.5	4	1.0	35	8.9	88	22.3	30	7.6	15	3.8
Clare	82	22.2	4	1.1	42	11.4	68	18.4	14	3.8	15	4.1
Clinton	243	29.1	2	0.2	83	9.9	83	9.9	18	2.2	26	3.1
Crawford	77	44.0	2	1.1	20	11.4	44	25.1	9	5.1	6	3.4
Delta	150	27.6	5	0.9	58	10.7	68	12.5	27	5.0	12	2.2
Dickinson	80	20.8	3	0.8	24	6.2	53	13.8	13	3.4	14	3.6
Eaton	431	32.5	8	0.6	104	7.8	139	10.5	51	3.8	51	3.8
Emmet	138	36.4	3	0.8	28	7.4	47	12.4	13	3.4	17	4.5
Genesee	2,766	40.6	29	0.4	595	8.7	1,582	23.2	240	3.5	443	6.5
Gladwin	87	29.8	-	-	34	11.6	69	23.6	13	4.5	17	5.8
Gogebic	83	40.5	4	2.0	24	11.7	30	14.6	16	7.8	14	6.8
Grand Traverse	152	16.1	7	0.7	68	7.2	111	11.8	121	12.8	16	1.7
Gratiot	186	32.4	5	0.9	39	6.8	88	15.3	40	7.0	19	3.3
Hillsdale	232	35.9	6	0.9	61	9.4	133	20.6	44	6.8	31	4.8
Houghton	160	36.0	8	1.8	71	16.0	34	7.6	9	2.0	6	1.3
Huron	142	25.8	4	0.7	75	13.6	66	12.0	30	5.5	8	1.5
Ingham	922	20.9	17	0.4	369	8.3	758	17.1	243	5.5	196	4.4
Ionia	272	30.2	14	1.6	84	9.3	181	20.1	48	5.3	42	4.7
Iosco	242	40.5	7	1.2	39	6.5	70	11.7	18	3.0	13	2.2
Iron	52	37.1	2	1.4	17	12.1	28	20.0	8	5.7	7	5.0
Isabella	211	28.2	4	0.5	64	8.5	105	14.0	64	8.5	35	4.7
Jackson	534	24.7	12	0.6	189	8.7	413	19.1	138	6.4	109	5.0
Kalamazoo	1,162	35.3	12	0.4	254	7.7	538	16.3	97	2.9	133	4.0
Kalkaska	52	22.6	-	-	29	12.6	47	20.4	27	11.7	9	3.9
Kent	1,807	20.4	71	0.8	788	8.9	1,423	16.0	263	3.0	391	4.4
Keweenaw	9	47.4	1	5.3	3	15.8	1	5.3	1	5.3	-	-

Table 4.11, 1985 (Continued)

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Lake	45	34.9	3	2.3	17	13.2	32	24.8	10	7.8	7	5.4
Lapeer	310	29.8	9	0.9	114	11.0	197	19.0	23	2.2	49	4.7
Leelanau	44	19.5	2	0.9	20	8.8	27	11.9	23	10.2	10	4.4
Lenawee	418	32.5	13	1.0	140	10.9	271	21.0	43	3.3	58	4.5
Livingston	408	28.9	6	0.4	127	9.0	160	11.3	141	10.0	39	2.8
Luce	23	29.5	-	-	7	9.0	21	26.9	2	2.6	3	3.8
Mackinac	41	30.1	4	2.9	18	13.2	24	17.6	11	8.1	6	4.4
Macomb	2,611	27.5	47	0.5	641	6.8	1,145	12.1	248	2.6	184	1.9
Manistee	70	26.7	4	1.5	21	8.0	49	18.7	26	9.9	10	3.8
Marquette	563	48.0	8	0.7	96	8.2	87	7.4	82	7.0	24	2.0
Mason	91	26.1	4	1.1	27	7.8	52	14.9	17	4.9	11	3.2
Mecosta	150	31.1	23	4.8	49	10.1	73	15.1	27	5.6	16	3.3
Menominee	131	40.3	2	0.6	37	11.4	41	12.6	23	7.1	11	3.4
Midland	391	38.0	9	0.9	92	8.9	155	15.1	35	3.4	33	3.2
Missaukee	71	36.0	1	0.5	24	12.2	33	16.8	11	5.5	7	3.6
Monroe	696	36.4	19	1.0	178	9.3	371	19.4	91	4.8	74	3.9
Montcalm	209	26.9	9	1.2	73	9.4	162	20.9	64	8.2	41	5.3
Montmorency	34	37.4	2	2.2	10	11.0	14	15.4	6	6.6	2	2.2
Muskegon	557	21.5	23	0.9	266	10.3	564	21.8	1,236	47.8	163	6.3
Newaygo	163	25.7	11	1.7	56	8.8	164	25.8	59	9.3	36	5.7
Oakland	3,828	26.5	56	0.4	1,072	7.4	1,877	13.0	444	3.1	326	2.3
Oceana	94	25.3	5	1.3	42	11.3	102	27.5	41	11.1	12	3.2
Ogemaw	68	26.9	9	3.6	37	14.6	56	22.1	6	2.4	8	3.2
Ontonagon	32	29.9	2	1.9	8	7.5	13	12.1	9	8.4	2	1.9
Osceola	108	36.7	3	1.0	37	12.6	66	22.4	17	5.8	11	3.7
Oscoda	31	27.4	2	1.8	13	11.5	31	27.4	7	6.2	2	1.8
Otsego	61	24.7	4	1.6	24	9.7	22	8.9	19	7.7	7	2.8
Ottawa	532	18.7	21	0.7	255	9.0	355	12.5	86	3.0	56	2.0
Presque Isle	51	30.0	4	2.4	26	15.3	31	18.2	4	2.4	7	4.1
Roscommon	79	36.7	3	1.4	22	10.2	68	31.6	12	5.5	13	6.0
Saginaw	670	19.7	17	0.5	318	9.4	739	21.8	152	4.5	235	6.9
St. Clair	613	29.1	15	0.7	160	7.6	440	20.9	84	4.0	98	4.6
St. Joseph	302	30.9	8	0.8	102	10.5	227	23.3	46	4.7	52	5.3
Sanilac	225	39.3	4	0.7	52	9.1	92	16.1	36	6.3	20	3.5
Schoolcraft	19	17.4	2	1.8	9	8.3	28	25.7	2	1.8	6	5.5
Shiawassee	280	27.3	6	0.6	76	7.4	194	18.9	44	4.3	43	4.2
Tuscola	232	28.9	7	0.9	61	7.6	138	17.2	33	4.1	29	3.6
Van Buren	357	35.2	11	1.1	97	9.6	284	28.0	68	6.7	43	4.2
Washtenaw	1,164	30.3	22	0.6	338	8.8	404	10.5	617	16.0	87	2.3
Wayne	9,749	29.4	241	0.7	3,782	11.4	8,621	26.0	2,135	6.4	2,074	6.3
Wexford	145	33.0	5	1.1	47	10.7	102	23.2	20	4.6	23	5.2
Co. Not Stated	1	25.0	-	-	-	-	1	25.0	1	25.0	-	-

[1] The Kessner Index is a classification of prenatal care based on the month of pregnancy prenatal care began, the number of prenatal visits and the length of pregnancy

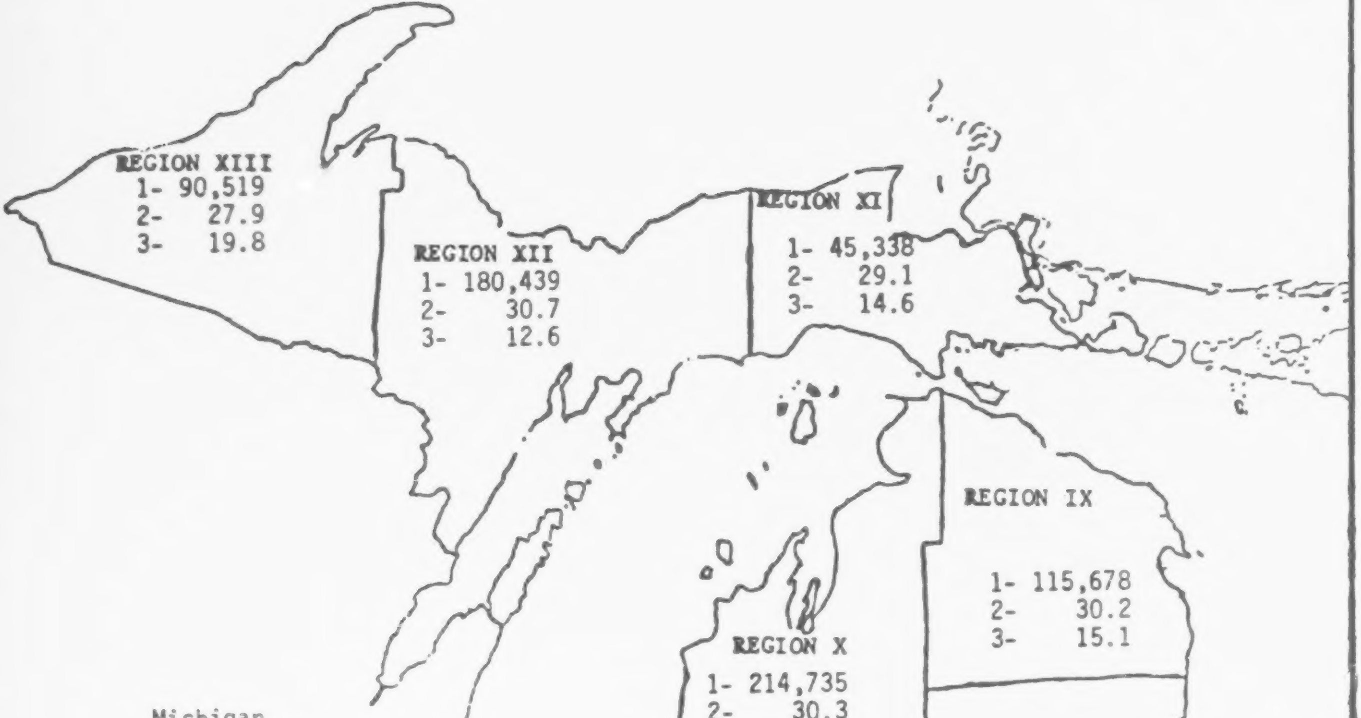
Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1985

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Michigan	138,052	352	844	1,833	3,148	4,564	5,890	16,279	41,125	47,049	25,491	6,864	887	5
Alcona	108	1	-	1	4	3	8	16	48	24	15	2	2	-
Alger	114	-	-	2	5	5	6	18	31	36	21	5	3	-
Allegan	1,405	2	6	17	38	49	58	168	450	494	225	60	6	-
Alpena	419	1	3	1	8	15	20	47	132	159	69	10	1	-
Antrim	256	-	1	4	4	11	18	38	76	75	57	8	1	1
Arenac	198	2	-	4	6	11	10	31	73	55	30	7	-	-
Baraga	114	-	-	1	2	6	7	16	41	33	17	6	1	-
Barry	726	1	5	6	24	23	25	83	254	236	121	29	2	-
Bay	1,692	4	10	18	37	57	59	181	506	616	308	64	13	-
Benzie	179	-	-	1	7	5	9	22	53	57	37	10	-	-
Berrien	2,518	16	32	40	83	134	151	440	807	744	392	103	16	-
Branch	672	-	4	4	18	29	38	93	231	218	96	31	3	-
Calhoun	1,990	5	18	43	48	96	117	322	684	607	287	80	5	-
Cass	672	-	1	10	24	28	41	104	256	196	83	29	4	-
Charlevoix	310	-	2	2	4	13	10	31	100	103	60	15	1	-
Cheboygan	306	-	1	2	11	11	14	39	93	100	58	15	1	-
Chippewa	394	-	2	4	9	14	21	50	148	118	57	20	1	-
Clare	369	-	1	2	12	22	25	62	135	116	44	11	1	-
Clinton	836	1	-	10	15	20	31	76	270	282	146	54	7	-
Crawford	175	-	1	2	3	12	9	27	57	59	26	5	1	-
Delta	543	-	-	8	4	19	26	57	187	184	85	26	4	-
Dickinson	385	-	1	4	9	20	11	45	125	136	60	19	-	-
Eaton	1,326	3	4	17	27	38	49	135	430	427	253	65	13	-
Emmet	379	1	5	5	6	12	10	38	110	127	81	20	2	-
Genesee	6,817	33	64	137	209	274	339	1,023	2,296	2,151	1,030	253	31	-
Gladwin	292	1	1	5	10	6	18	40	113	88	38	10	2	-
Gogebic	205	-	1	6	7	9	14	37	63	56	37	8	4	-
Grand Traverse	943	-	2	3	11	21	29	66	268	322	234	47	6	-
Gratiot	574	-	2	5	12	16	30	65	207	195	85	19	3	-
Hillsdale	646	2	4	12	13	19	40	88	252	185	90	25	4	-
Houghton	445	-	-	-	6	11	19	36	130	137	106	26	10	-
Huron	550	-	-	3	5	14	25	47	183	200	96	20	4	-
Ingham	4,420	12	33	59	92	125	163	472	1,281	1,520	865	240	30	-
Ionia	901	-	5	12	25	37	46	125	347	279	120	28	2	-
Iosco	597	1	-	6	6	16	36	64	272	185	59	14	2	-
Iron	140	-	-	3	4	8	2	17	49	39	29	5	1	-
Isabella	749	3	4	9	19	19	36	87	246	258	114	38	3	-
Jackson	2,164	10	13	35	51	81	94	274	708	729	341	93	9	-
Kalamazoo	3,296	10	16	46	61	97	127	347	876	1,164	714	173	12	-
Kalkaska	230	1	-	3	5	5	15	28	90	72	33	6	-	-
Kent	8.871	21	59	95	216	257	341	968	2.527	3.312	1.639	359	45	-
Keweenaw	19	-	-	-	-	-	2	2	6	5	4	2	-	-

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1985 (Cont.)

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Lake	129	1	-	1	5	5	7	18	55	32	16	5	2	-
Lapeer	1,039	-	4	19	26	39	49	137	363	338	146	49	5	1
Leelanau	226	-	2	2	6	6	3	19	45	78	61	21	2	-
Lenawee	1,288	1	6	16	35	47	66	170	433	406	211	54	13	-
Livingston	1,414	-	5	9	25	34	56	129	357	508	315	98	7	-
Luce	78	-	-	2	1	7	10	20	24	18	11	5	-	-
Mackinac	136	-	-	1	5	6	5	17	39	53	19	7	1	-
Macomb	9,485	4	15	56	109	200	254	634	2,437	3,935	1,966	459	50	-
Manistee	262	1	-	2	7	9	16	34	67	98	48	12	2	-
Marquette	1,174	-	-	7	17	37	47	108	383	418	224	40	1	-
Mason	348	-	3	2	6	9	17	37	104	134	58	13	2	-
Mecosta	483	-	1	7	8	16	23	55	186	138	77	27	-	-
Menominee	325	-	1	2	8	11	17	39	103	111	52	16	4	-
Midland	1,028	-	5	9	19	30	39	102	268	367	222	62	7	-
Missaukee	197	1	1	2	3	9	10	25	77	61	23	10	-	-
Monroe	1,912	4	10	26	34	74	102	246	635	643	295	80	9	-
Montcalm	776	1	3	10	27	31	38	109	327	224	82	29	4	-
Montmorency	91	-	-	1	1	1	3	6	42	27	13	1	2	-
Muskegon	2,585	9	22	45	87	106	134	394	857	805	408	97	15	-
Newaygo	635	-	1	13	22	26	36	98	250	182	80	23	2	-
Oakland	14,455	9	43	96	178	270	383	970	3,379	5,288	3,619	1,071	119	-
Oceana	371	2	-	2	8	13	21	44	164	112	39	8	2	-
Ogemaw	253	-	-	2	6	10	13	31	93	76	35	14	4	-
Ontonagon	107	-	1	-	1	8	5	15	39	28	19	5	1	-
Osceola	294	-	1	5	5	16	15	42	107	96	38	9	2	-
Oscoda	113	-	-	-	2	7	6	15	45	40	10	2	1	-
Otsego	247	-	-	4	3	8	9	24	71	91	44	16	1	-
Ottawa	2,842	1	4	21	30	74	85	214	880	1,086	536	110	15	-
Presque Isle	170	-	-	1	6	5	4	16	54	55	36	8	1	-
Roscommon	215	-	3	2	8	16	17	46	87	50	27	4	1	-
Saginaw	3,393	17	33	68	117	128	161	507	988	1,137	581	144	19	-
St. Clair	2,108	2	9	29	58	76	94	266	713	719	324	75	8	1
St. Joseph	976	1	6	13	32	32	53	136	349	312	127	43	8	-
Sanilac	573	-	2	9	9	19	34	73	212	189	82	14	3	-
Schoolcraft	109	-	-	4	2	1	6	13	49	30	11	3	3	-
Shiawassee	1,026	1	3	17	22	35	61	138	357	329	160	37	4	-
Tuscola	802	-	1	10	18	30	44	103	303	256	112	24	3	1
Van Buren	1,013	2	2	11	28	49	59	149	343	314	157	42	6	-
Washtenaw	3,845	3	12	28	44	87	102	273	863	1,350	1,009	310	37	-
Wayne	33,141	160	344	623	947	1,294	1,608	4,816	9,610	10,678	5,870	1,743	263	1
Wexford	439	1	-	9	13	14	28	64	155	138	65	14	2	-
Co. Not Stated	4	-	-	-	-	1	1	2	1	-	1	-	-	-

FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and Over by Region, Michigan, 1985


REGION XIII
1- 90,519
2- 27.9
3- 19.8
REGION XII
1- 180,439
2- 30.7
3- 12.6
REGION XI
1- 45,338
2- 29.1
3- 14.6
REGION IX
1- 115,678
2- 30.2
3- 15.1
REGION X
1- 214,735
2- 30.3
3- 12.9
Michigan
1-9,088,341
2- 30.8
3- 10.4
REGION VIII
1- 785,555
2- 31.4
3- 11.1
REGION VII
1- 759,607
2- 32.0
3- 11.4
REGION XIV
1- 346,320
2- 32.4
3- 10.5
LEGEND
1-Total Population
2-Percent Population Under Age 20
3-Percent Population Over Age 65
REGION V
1- 571,734
2- 33.7
3- 8.4
1-418,469
2-31.2
3- 7.9
REGION VI
REGION I
1- 4,511,892
2- 29.9
3- 10.0
REGION IV
1- 277,837
2- 32.1
3- 11.8
REGION III
1-496,186
2-30.1
3-10.8
1-274,032
2-31.2
3-10.8
REGION II

[1] State Planning and Developement Regions - August, 1973

Table 4.13
Vital Statistics for Residents of Selected Michigan Cities[1], 1985

AREA	LIVE BIRTHS	DEATHS	INFANT DEATHS		FETAL DEATHS	
			NUMBER	RATE	NUMBER	RATE
Allen Park	354	342	2	5.6	2	5.6
Ann Arbor	1450	478	17	11.7	8	5.5
Battle Creek[2]	968	603	13	13.4	5	5.1
Bay City	800	472	10	12.5	6	7.4
Burton City	377	226	1	2.7	5	13.1
Dearborn	1188	1036	3	2.5	6	5.0
Dearborn Heights	728	590	5	6.9	2	2.7
Detroit	17802	13077	355	19.9	116	6.5
East Detroit	479	358	4	8.4	7	14.4
East Lansing	416	137	3	7.2	2	4.8
Farmington Hills	760	454	9	11.8	4	5.2
Ferndale	469	296	7	14.9	5	10.5
Flint	3210	1496	53	16.5	14	4.3
Garden City	448	219	1	2.2	7	15.4
Grand Rapids	4042	1891	48	11.9	39	9.6
Highland Park	350	342	14	40.0	4	11.3
Holland	541	258	4	7.4	1	1.8
Inkster	507	312	8	15.8	2	3.9
Jackson	770	429	11	14.3	4	5.2
Kalamazoo	1453	670	15	10.3	10	6.8
Kentwood	499	130	2	4.0	2	4.0
Lansing	2614	972	38	14.5	16	6.1
Lincoln Park	607	435	10	16.5	2	3.3
Livonia	1182	817	7	5.9	4	3.4
Madison Heights	506	250	5	9.9	4	7.8
Midland	506	258	3	5.9	2	3.9
Muskegon	884	499	12	13.6	8	9.0
Oak Park	532	304	8	15.0	3	5.6
Pontiac	1645	678	30	18.2	19	11.4
Portage	522	175	4	7.7	3	5.7
Port Huron	701	348	8	11.4	5	7.1
Roseville	762	457	5	6.6	2	2.6
Royal Oak	1064	644	9	8.5	10	9.3
Saginaw	1518	722	35	23.1	17	11.1
St. Clair Shores	777	764	6	7.7	1	1.3
Southfield	861	847	10	11.6	7	8.1
Southgate	366	237	3	8.2	3	8.1
Sterling Heights	1409	597	16	11.4	2	1.4
Taylor	1237	489	21	17.0	5	4.0
Troy	856	378	9	10.5	7	8.1
Warren	1938	1425	23	11.9	14	7.2
Westland	1267	634	7	5.5	14	10.9
Wyandotte	544	385	4	7.4	3	5.5
Wyoming	1074	323	5	4.7	4	3.7

[1] 25,000 population or over according to the 1980 census.

[2] On January 1, 1983, Battle Creek City annexed Battle Creek Township. The data shown for Battle Creek in this table are for the current boundaries of Battle Creek, and thus are not comparable to data for Battle Creek for earlier years. The infant death rate in 1982 for the area which is now Battle Creek was 15.9.

Table 4.14
Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Michigan	78635	46	855	17281	4389	4749	1522	1842	728	701	3350
Alcona	145	-	-	37	13	13	-	4	2	1	4
Alger	101	-	-	18	3	4	2	3	-	2	4
Allegan	632	-	8	144	38	31	16	14	4	10	31
Alpena	315	-	4	79	19	20	6	10	1	1	22
Antrim	202	-	1	43	9	10	1	8	-	1	14
Arenac	158	-	2	37	12	9	1	5	2	-	8
Baraga	107	-	-	24	6	9	3	-	-	-	6
Barry	398	-	4	100	30	27	10	7	4	4	18
Bay	991	-	10	224	51	57	21	21	15	8	51
Benzie	145	-	-	31	5	8	4	3	2	4	5
Berrien	1690	-	16	387	110	99	30	38	18	15	77
Branch	385	-	2	88	19	28	10	9	6	5	11
Calhoun	1269	-	15	302	63	81	34	25	22	12	65
Cass	436	-	3	99	25	30	10	10	4	8	12
Charlevoix	226	-	1	50	15	15	4	7	1	-	8
Cheboygan	244	-	2	65	26	21	3	6	1	1	7
Chippewa	282	-	4	62	14	16	4	10	3	1	14
Clare	288	-	6	56	10	16	3	7	1	5	14
Clinton	380	-	1	92	21	21	7	4	8	7	24
Crawford	104	-	1	28	5	8	1	8	-	2	4
Delta	406	-	3	113	29	35	7	14	6	4	18
Dickinson	288	-	1	67	20	20	3	8	4	-	12
Eaton	558	-	5	112	24	29	12	16	2	5	24
Emmet	248	-	1	52	16	15	4	2	3	2	10
Genesee	3349	3	34	703	176	216	51	69	33	30	128
Gladwin	240	1	2	52	16	13	3	8	3	-	9
Gogebic	253	-	6	54	14	15	5	6	1	2	11
Grand Traverse	485	-	3	120	33	27	10	10	9	8	23
Gratiot	402	1	-	69	20	10	7	6	2	7	17
Hillsdale	381	-	4	68	13	22	7	10	5	2	9
Houghton	441	1	5	102	26	20	5	16	4	10	21
Huron	380	-	1	93	26	18	8	13	4	8	16
Ingham	1711	1	20	369	82	95	35	42	22	12	81
Ionia	417	-	1	94	24	23	6	10	3	4	24
Iosco	288	-	2	61	19	12	5	8	3	4	10
Iron	210	-	1	46	7	13	3	7	1	2	13
Isabella	333	-	5	71	22	16	2	6	1	5	19
Jackson	1232	1	20	271	69	87	22	24	9	10	50
Kalamazoo	1539	1	15	333	82	78	34	34	13	14	78
Kalkaska	96	-	1	24	5	8	2	3	-	2	4
Kent	3449	1	25	781	199	185	76	76	33	42	170
Keweenaw	39	-	-	6	-	2	-	1	1	-	2
Lake	129	-	4	29	6	10	4	3	-	1	5

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985(Continued)

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Lapeer	459	-	8	107	23	25	8	16	2	4	29
Leelanau	146	-	1	32	9	12	1	3	2	3	2
Lenawee	705	-	8	179	35	62	16	16	9	7	34
Livingston	676	1	7	132	25	42	14	18	8	4	21
Luce	94	-	-	16	3	5	-	2	-	2	4
Mackinac	118	-	-	23	9	3	4	5	1	-	1
Macomb	5419	-	58	1288	331	362	114	112	51	51	267
Manistee	249	-	-	50	14	12	4	6	1	2	11
Marquette	535	-	7	112	28	35	9	13	4	3	20
Mason	320	-	1	72	21	14	7	11	2	4	13
Mecosta	271	-	3	63	18	20	2	8	2	1	12
Menominee	267	2	-	58	12	19	2	6	3	1	15
Midland	453	-	3	106	24	28	15	10	3	2	24
Missaukee	95	-	-	17	2	6	1	3	-	2	3
Monroe	991	1	9	233	47	77	27	19	10	10	43
Montcalm	403	-	1	81	15	18	6	11	5	1	25
Montmorency	128	-	2	28	6	7	3	2	1	1	8
Muskegon	1420	-	10	300	70	101	21	36	8	7	57
Newaygo	318	-	3	69	17	19	5	12	6	1	9
Oakland	7757	5	90	1752	414	479	177	188	66	79	349
Oceana	184	-	-	36	10	5	-	6	5	2	8
Ogemaw	194	-	-	40	9	10	4	5	2	2	8
Ontonagon	125	-	-	31	11	9	2	-	2	1	6
Osceola	188	-	-	37	9	8	5	8	2	-	5
Oscoda	85	-	-	20	8	4	-	5	2	-	1
Otsego	167	-	-	53	16	16	3	10	-	2	6
Ottawa	1075	-	10	234	49	46	17	26	14	12	70
Presque Isle	143	-	1	22	7	6	3	2	-	2	2
Roscommon	222	-	2	70	16	26	6	9	3	2	8
Saginaw	1727	1	15	391	120	93	26	30	16	12	94
St Clair	1265	1	15	290	82	83	26	29	10	11	49
St Joseph	523	-	4	121	27	26	11	17	7	3	30
Sanilac	427	-	2	102	27	20	12	10	8	6	19
Schoolcraft	112	-	-	30	13	6	3	3	-	-	5
Shiawassee	489	1	3	100	20	30	10	10	4	5	21
Tuscola	434	-	3	102	36	25	8	7	2	7	17
Van Buren	608	-	8	127	40	33	7	10	8	7	22
Washtenaw	1460	1	11	317	72	72	33	34	20	13	73
Wayne	22720	23	330	4729	1256	1378	424	529	176	166	800
Wexford	274	-	1	51	16	15	5	3	6	1	5
Co. Not Stated	17	-	-	4	-	-	-	1	1	1	1

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Michigan	1387	124	38440	30618	266	5528	1173	855	2229	2762	279	1256
Alcona	4	-	83	71	1	7	1	3	5	4	-	-
Alger	-	-	54	41	2	7	3	1	6	5	-	-
Allegan	8	1	292	221	5	44	13	9	28	27	2	11
Alpena	2	1	153	127	1	17	1	7	14	8	3	4
Antrim	2	2	110	85	1	15	6	3	10	6	1	-
Arenac	7	-	72	55	-	11	4	2	3	11	-	4
Baraga	2	-	59	40	2	15	-	2	6	-	-	3
Barry	9	1	172	147	1	17	5	2	13	17	1	3
Bay	22	5	535	400	2	86	38	9	12	35	1	17
Benzie	4	-	72	44	-	24	4	-	3	7	1	1
Berrien	17	7	815	635	7	133	28	12	44	77	6	21
Branch	8	2	180	140	3	29	4	4	17	14	-	10
Calhoun	30	1	578	450	3	85	23	17	42	47	4	11
Cass	4	8	208	177	-	21	5	5	18	18	1	3
Charlevoix	2	-	118	104	1	9	-	4	3	10	1	-
Cheboygan	4	-	124	103	-	16	3	2	10	4	1	3
Chippewa	11	-	149	127	1	17	-	4	6	11	-	3
Clare	2	-	163	141	1	14	2	5	5	13	1	7
Clinton	8	1	179	135	2	36	2	4	13	17	2	5
Crawford	-	2	43	34	-	7	1	1	4	5	2	1
Delta	4	-	181	135	-	33	6	7	16	11	2	7
Dickinson	3	-	153	109	1	32	5	6	12	7	2	3
Eaton	12	1	233	182	2	39	8	2	21	21	2	4
Emmet	2	-	122	100	-	20	-	2	9	9	1	4
Genesee	71	4	1650	1299	13	251	62	25	80	101	9	45
Gladwin	3	-	142	113	-	24	1	4	7	10	-	3
Gogebic	5	-	127	108	1	14	1	3	14	4	-	-
Grand Traverse	9	-	216	148	3	38	17	10	21	22	2	6
Gratiot	4	1	230	165	1	48	13	3	11	17	-	1
Hillsdale	13	-	186	151	1	24	6	4	17	21	3	4
Houghton	9	1	220	171	2	26	10	11	21	11	1	8
Huron	11	-	188	142	1	37	6	2	13	10	4	2
Ingham	53	6	803	644	6	121	17	15	56	52	4	13
Ionia	5	-	189	141	1	31	7	9	8	23	5	5
Iosco	1	-	155	117	1	25	5	7	8	9	2	5
Iron	1	-	98	84	-	9	3	2	14	10	1	3
Isabella	8	-	178	141	3	23	7	4	4	8	2	3
Jackson	17	1	598	469	6	81	28	14	35	54	10	15
Kalamazoo	24	7	710	558	11	109	16	16	58	66	6	20
Kalkaska	3	-	44	30	-	6	5	3	3	4	-	-
Kent	38	1	1724	1320	10	278	71	45	123	113	10	24
Keweenaw	1	-	20	15	-	2	2	1	1	-	-	-
Lake	3	-	62	48	1	11	2	-	9	2	-	-

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Lapeer	13	-	214	173	2	29	6	4	4	17	-	1
Leelanau	4	-	73	64	1	5	1	2	1	5	-	-
Lenawee	12	1	337	249	3	60	17	8	23	29	6	1
Livingston	7	4	364	320	3	30	4	7	12	16	4	9
Luce	4	-	49	39	-	3	4	3	4	3	-	2
Mackinac	3	-	62	50	-	9	-	3	3	6	-	1
Macomb	82	1	2769	2224	23	373	87	62	141	180	18	108
Manistee	2	2	136	95	-	28	11	2	8	6	2	3
Marquette	8	-	274	211	2	45	14	2	16	8	1	7
Mason	4	-	166	127	2	27	7	3	11	15	1	2
Mecosta	2	-	137	111	-	16	5	5	7	8	1	2
Menominee	11	1	128	96	2	18	11	1	3	14	1	2
Midland	5	2	215	166	-	31	12	6	9	18	1	8
Missaukee	1	-	60	53	-	3	4	-	3	1	-	-
Monroe	21	3	464	378	-	68	7	11	29	57	1	6
Montcalm	12	-	185	145	1	34	3	2	20	17	4	5
Montmorency	2	-	58	43	-	9	-	6	4	8	-	1
Muskegon	25	1	731	560	4	127	26	14	43	62	6	18
Newaygo	3	1	163	123	1	34	1	4	6	17	3	2
Oakland	137	7	3880	3144	21	520	103	92	161	268	30	104
Oceana	4	-	88	73	-	8	4	3	9	6	-	5
Ogemaw	3	-	112	79	1	22	10	-	5	5	-	2
Ontonagon	3	-	64	44	-	10	6	4	3	8	-	4
Osceola	2	1	102	81	-	13	5	3	4	8	2	3
Oscoda	3	-	43	31	-	9	2	1	3	1	-	2
Otsego	-	-	78	66	-	9	2	1	6	5	1	1
Ottawa	12	6	532	388	4	94	30	16	43	24	4	11
Presque Isle	-	1	80	68	-	8	3	1	4	4	1	3
Roscommon	5	-	109	80	-	25	2	2	7	8	-	2
Saginaw	27	1	841	649	5	130	31	26	45	66	5	27
St Clair	39	6	582	455	1	93	9	24	54	57	2	18
St Joseph	10	-	234	178	4	37	14	1	8	30	5	5
Sanilac	9	2	232	191	-	34	1	6	6	18	2	5
Schoolcraft	5	-	50	40	-	7	-	3	6	4	-	1
Shiawassee	16	1	234	173	2	50	7	2	18	23	3	5
Tuscola	7	-	214	168	-	37	6	3	8	14	-	2
Van Buren	18	1	300	235	2	46	6	11	16	21	2	5
Washtenaw	27	5	665	514	7	104	23	17	48	59	12	11
Wayne	393	22	10881	8970	77	1398	235	201	588	712	67	575
Wexford	-	2	141	92	1	33	13	2	17	13	1	4
Co. Not Stated	-	-	5	5	-	-	-	-	-	-	-	1

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Michigan	725	9	494	825	396	6048	3228	1676	1552	1088	1062	101
Alcona	-	-	-	-	2	4	4	1	3	-	2	-
Alger	1	-	1	-	-	7	7	3	4	1	-	1
Allegan	4	-	4	2	12	40	48	30	18	1	-	-
Alpena	2	-	1	2	-	21	15	7	8	6	-	-
Antrim	2	-	-	1	1	8	11	7	4	3	1	-
Arenac	1	-	-	1	-	1	14	6	8	5	-	-
Baraga	-	-	-	-	-	4	9	6	3	-	-	-
Barry	5	-	2	2	4	31	31	20	11	1	2	-
Bay	12	-	6	10	2	49	35	16	19	12	4	-
Benzie	1	-	-	1	-	14	5	2	3	3	2	-
Berrien	22	-	9	15	3	137	82	44	38	23	9	-
Branch	3	-	4	-	3	26	24	15	9	4	-	-
Calhoun	13	1	6	13	12	108	55	28	27	18	12	1
Cass	2	-	2	5	4	32	20	11	9	7	2	-
Charlevoix	-	-	1	1	3	25	9	4	5	1	1	-
Cheboygan	3	-	-	-	-	14	9	3	6	4	1	-
Chippewa	1	-	1	1	-	15	13	4	9	4	-	1
Clare	3	-	-	1	3	16	11	7	4	1	-	-
Clinton	1	-	1	7	4	19	25	18	7	4	1	-
Crawford	2	-	-	-	-	10	5	3	2	1	-	-
Delta	2	-	7	4	2	33	15	7	8	6	-	-
Dickinson	5	-	2	-	2	21	7	4	3	3	-	-
Eaton	4	1	3	6	4	67	48	27	21	9	5	-
Emmet	1	-	3	1	-	21	16	9	7	6	-	-
Genesee	44	-	19	57	17	247	159	80	79	49	55	2
Gladwin	1	-	1	2	1	8	5	2	3	1	1	-
Gogebic	4	-	1	1	2	23	9	1	8	3	-	-
Grand Traverse	4	-	4	2	3	42	22	14	8	9	-	-
Gratiot	5	-	4	7	3	24	18	8	10	7	-	-
Hillsdale	1	-	1	4	2	25	25	10	15	6	1	-
Houghton	1	-	4	1	-	35	17	6	11	4	-	-
Huron	5	-	-	-	1	27	18	13	5	5	2	-
Ingham	10	-	16	28	10	149	91	46	45	23	7	-
Ionia	5	-	5	3	5	36	29	16	13	3	1	-
Iosco	3	-	2	2	5	16	11	6	5	4	2	-
Iron	2	-	1	2	-	25	3	-	3	3	-	-
Isabella	5	-	4	1	2	21	17	11	6	3	1	-
Jackson	11	-	6	15	4	90	64	31	33	11	9	-
Kalamazoo	20	-	9	20	5	138	74	37	37	27	6	-
Kalkaska	-	-	-	1	1	10	4	3	1	1	-	-
Kent	31	-	18	42	24	278	154	69	85	41	21	-
Keweenaw	1	1	1	1	-	5	-	-	-	2	-	-
Lake	2	1	-	-	-	9	6	1	5	1	-	1

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1985 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Lapeer	6	-	4	4	2	40	30	23	7	8	1	-
Leelanau	1	-	-	-	2	15	8	6	2	2	2	-
Lenawee	4	-	3	5	1	53	28	15	13	15	-	-
Livingston	2	-	5	5	1	42	50	37	13	10	5	-
Luce	3	-	1	2	-	7	1	-	1	2	-	-
Mackinac	1	-	-	-	-	10	8	5	3	1	-	-
Macomb	45	-	44	40	17	359	145	82	63	89	32	3
Manistee	2	-	2	4	-	23	7	4	3	2	-	-
Marquette	6	-	5	7	-	47	22	12	10	10	4	1
Mason	4	-	3	1	-	27	9	4	5	2	2	-
Mecosta	1	-	4	5	1	21	10	3	7	6	-	-
Menominee	2	-	-	2	3	23	11	2	9	5	1	-
Midland	8	-	1	2	-	43	20	14	6	12	-	-
Missaukee	1	1	-	-	-	9	-	-	-	2	-	-
Monroe	7	-	6	6	3	72	52	30	22	17	3	1
Montcalm	2	-	8	3	4	37	18	9	9	6	-	-
Montmorency	2	-	-	1	-	10	9	6	3	3	-	-
Muskegon	4	-	8	8	5	117	62	29	33	12	7	1
Newaygo	2	-	1	4	-	24	16	11	5	4	-	-
Oakland	64	2	52	86	35	543	320	180	140	133	63	25
Oceana	2	-	3	-	1	12	12	5	7	4	2	-
Ogemaw	-	-	1	-	-	14	8	5	3	3	1	-
Ontonagon	-	-	-	-	-	9	1	1	-	1	1	-
Osceola	2	-	-	-	1	19	3	1	2	4	-	-
Oscoda	1	-	-	1	1	6	3	1	2	1	-	-
Otsego	2	-	-	2	-	12	4	3	1	3	-	-
Ottawa	6	-	7	9	10	94	60	29	31	12	1	-
Presque Isle	2	-	-	1	-	17	7	2	5	-	-	-
Roscommon	2	-	-	-	-	9	5	2	3	3	-	-
Saginaw	18	-	16	31	4	117	75	33	42	23	24	-
St Clair	7	-	9	11	5	102	51	33	18	12	3	1
St Joseph	6	-	2	4	2	48	35	18	17	7	2	-
Sanilac	6	-	-	-	-	20	22	11	11	1	-	-
Schoolcraft	1	-	-	-	-	10	5	-	5	-	-	-
Shiawassee	6	-	3	3	1	33	26	18	8	11	2	-
Tuscola	5	-	4	8	2	26	34	19	15	5	-	-
Van Buren	4	-	6	4	1	48	32	16	16	12	3	-
Washtenaw	13	-	15	16	14	125	67	35	32	37	15	2
Wayne	226	2	131	284	132	1857	691	325	366	277	739	61
Wexford	4	-	1	4	2	16	13	8	5	4	-	-
Co. Not Stated	-	-	-	-	-	1	4	3	1	1	1	-

Table 4.15
Reported Cases of Certain Communicable Diseases by County
Michigan Residents, 1985

AREA	TOTAL	GONORRHEA	CHICKEN POX	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH
Michigan	76,689	33,516	37,578	1,490	1,995	535	656	329	350	60	19	107	54
Alcona	1	0	0	0	1	0	0	0	0	0	0	0	0
Alger	9	4	3	0	2	0	0	0	0	0	0	0	0
Allegan	469	54	383	6	9	5	1	4	3	0	0	3	1
Alpena	71	3	50	8	5	1	0	1	0	0	0	1	2
Antrim	140	10	127	1	1	0	0	0	0	0	0	1	0
Arenac	7	2	0	0	1	1	1	0	0	0	0	2	0
Baraga	5	0	5	0	0	0	0	0	0	0	0	0	0
Barry	531	24	489	1	9	3	0	1	1	0	0	3	0
Bay	273	102	141	8	11	6	5	0	0	0	0	0	0
Benzie	12	2	8	0	0	2	0	0	0	0	0	0	0
Berrien	2,244	1,448	638	44	68	17	7	0	17	0	1	2	2
Branch	431	68	295	6	6	3	3	0	50	0	0	0	0
Calhoun	1,430	590	725	20	21	8	1	3	54	0	0	4	4
Cass	294	55	223	7	5	2	0	1	0	0	0	1	0
Charlevoix	37	3	31	1	0	1	0	1	0	0	0	0	0
Cheboygan	82	1	79	1	1	0	0	0	0	0	0	0	0
Chippewa	576	9	557	0	7	0	1	2	0	0	0	0	0
Clare	121	12	103	2	2	0	0	0	0	0	1	1	0
Clinton	115	21	87	1	4	1	0	0	1	0	0	0	0
Crawford	9	4	4	0	0	0	1	0	0	0	0	0	0
Delta	103	18	74	3	4	2	0	0	0	0	0	2	0
Dickinson	168	6	160	0	1	0	1	0	0	0	0	0	0
Eaton	272	36	205	6	16	0	1	4	2	0	0	0	2
Emmet	22	8	11	0	0	0	1	0	0	0	1	0	1
Genesee	3,887	2,841	901	63	35	13	20	2	5	0	0	7	0
Gladwin	15	9	2	1	1	1	1	0	0	0	0	0	0
Gogebic	11	4	6	0	0	1	0	0	0	0	0	0	0
Gd. Traverse	414	60	337	9	7	1	0	0	0	0	0	0	0
Gratiot	414	10	391	5	0	1	3	3	0	0	0	1	0
Hillsdale	532	14	482	13	13	2	0	3	3	0	0	1	1
Houghton	247	19	215	2	5	0	1	2	1	0	0	2	0
Huron	131	4	119	1	3	2	0	0	1	0	0	0	1
Ingham	3,348	1,684	1,506	58	52	15	20	3	6	0	0	1	3
Ionia	155	15	121	14	1	1	0	3	0	0	0	0	0
Iosco	35	12	17	2	1	1	2	0	0	0	0	0	0
Iron	16	1	13	1	0	0	1	0	0	0	0	0	0
Isabella	452	30	400	2	11	2	0	2	1	0	0	3	1
Jackson	684	307	314	7	42	3	7	2	2	0	0	0	0
Kalamazoo	1,587	1,239	77	33	177	8	4	3	40	0	0	6	0
Kalkaska	41	11	27	0	1	0	1	0	0	0	0	1	0
Kent	4,356	2,464	1,476	102	70	30	100	88	17	0	0	3	6
Keweenaw	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4.15
Reported Cases of Certain Communicable Diseases by County, 1985 (Continued)

AREA	TOTAL	GONORRHEA	CHICKEN POX	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH
Lake	22	7	12	2	1	0	0	0	0	0	0	0	0
Lapeer	610	25	568	2	4	2	0	7	0	0	1	1	0
Leelanau	107	3	103	0	0	0	0	0	0	1	0	0	0
Lenawee	416	111	267	21	11	3	0	1	0	0	0	0	2
Livingston	400	39	333	5	16	2	0	2	0	1	0	0	2
Luce	38	5	33	0	0	0	0	0	0	0	0	0	0
Mackinac	79	20	59	0	0	0	0	0	0	0	0	0	0
Macomb	3,034	596	2,083	157	96	35	17	19	19	0	1	11	0
Manistee	130	1	124	2	3	0	0	0	0	0	0	0	0
Marquette	641	87	250	5	293	1	2	0	3	0	0	0	0
Mason	194	19	170	2	1	1	1	0	0	0	0	0	0
Mecosta	329	38	278	2	8	0	1	1	0	0	0	0	1
Menominee	42	9	26	0	5	2	0	0	0	0	0	0	0
Midland	229	45	152	10	14	1	3	3	1	0	0	0	0
Missaukee	222	5	217	0	0	0	0	0	0	0	0	0	0
Monroe	1,000	77	866	19	15	8	3	4	0	5	0	3	0
Montcalm	104	21	75	0	2	5	1	0	0	0	0	0	0
Montmorency	62	0	60	1	0	0	1	0	0	0	0	0	0
Muskegon	1,620	671	838	31	37	5	12	1	19	0	0	4	2
Newaygo	198	19	167	2	3	2	2	2	1	0	0	0	0
Oakland	6,509	1,858	4,012	194	242	59	44	23	19	38	7	10	3
Oceana	70	8	44	4	3	0	0	0	11	0	0	0	0
Ogemaw	14	0	6	3	3	0	2	0	0	0	0	0	0
Ontonagon	141	34	107	0	0	0	0	0	0	0	0	0	0
Osceola	493	3	486	0	4	0	0	0	0	0	0	0	0
Oscoda	5	3	0	1	1	0	0	0	0	0	0	0	0
Otsego	238	5	227	3	2	0	0	1	0	0	0	0	0
Ottawa	1,138	111	854	14	27	6	5	112	7	0	0	0	2
Presque Isle	59	4	50	0	1	0	0	1	0	0	0	3	0
Roscommon	154	10	141	0	1	0	1	0	0	0	0	1	0
Saginaw	2,237	1,429	683	44	42	13	17	5	3	0	0	0	1
St. Clair	1,062	190	833	14	15	3	1	1	2	0	1	2	0
St. Joseph	210	72	104	18	7	2	0	3	0	0	0	3	1
Sanilac	164	0	156	1	1	1	0	0	0	0	5	0	0
Schoolcraft	31	12	18	1	0	0	0	0	0	0	0	0	0
Shiawasee	271	21	235	3	8	2	1	0	1	0	0	0	0
Tuscola	261	18	211	3	17	1	1	2	1	0	0	3	4
Van Buren	380	65	287	4	15	5	1	1	1	0	0	1	0
Washtenaw	1,246	884	189	65	55	10	17	4	9	11	0	1	1
Wayne	28,424	15,749	11,138	426	447	232	340	8	49	4	1	19	11
Wexford	358	38	314	3	2	1	0	0	0	0	0	0	0

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	I. INFECTIOUS AND PARASITIC DISEASES (001-139)	
3	Other salmonella infections	2
8	Intestinal infections due to other organisms	3
9	Ill-defined intestinal infections	3
11	Pulmonary tuberculosis	37
13	Tuberculosis of meninges and central nervous system	2
16	Tuberculosis of genitourinary system	1
17	Tuberculosis of other organs	1
18	Miliary tuberculosis	5
27	Other zoonotic bacterial diseases	2
31	Diseases due to other mycobacteria	4
36	Meningococcal infection	7
38	Septicemia	626
39	Actinomycotic infections	4
40	Other bacterial diseases	11
41	Bacterial infection in conditions classified elsewhere and of unspecified site	20
46	Slow virus infection of central nervous system	9
47	Meningitis due to enterovirus	1
48	Other enterovirus diseases of central nervous system	1
49	Other non-arthropod-borne viral diseases of central nervous system	1
52	Chickenpox	3
53	Herpes zoster	4
54	Herpes simplex	8
70	Viral hepatitis	19
75	Infectious mononucleosis	1
78	Other diseases due to viruses and Chlamydiae	9
79	Viral infection in conditions classified elsewhere and of unspecified site	11
93	Cardiovascular syphilis	2
97	Other and unspecified syphilis	1
100	Leptospirosis	2
112	Candidiasis	24
116	Blastomycotic infection	1
117	Other mycoses	25
127	Other intestinal helminthiases	1
135	Sarcoidosis	11
136	Other and unspecified infectious and parasitic diseases	32
137	Late effects of tuberculosis	4
138	Late effects of acute poliomyelitis	3
	II. NEOPLASMS (140-239)	
140	Malignant neoplasm of lip	4
141	Malignant neoplasm of tongue	77
142	Malignant neoplasm of major salivary glands	19
143	Malignant neoplasm of gum	9
144	Malignant neoplasm of floor of mouth	15
145	Malignant neoplasm of other and unspecified parts of mouth	45
146	Malignant neoplasm of oropharynx	37
147	Malignant neoplasm of nasopharynx	19
148	Malignant neoplasm of hypopharynx	21
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity and pharynx	57
150	Malignant neoplasm of oesophagus	353
151	Malignant neoplasm of stomach	509
152	Malignant neoplasm of small intestine, including duodenum	18
153	Malignant neoplasm of colon	1823
154	Malignant neoplasm of rectum, rectosigmoid junction and anus	279
155	Malignant neoplasm of liver and intrahepatic bile ducts	239
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	180
157	Malignant neoplasm of pancreas	868
158	Malignant neoplasm of retroperitoneum and peritoneum	22
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	98
160	Malignant neoplasm of nasal cavities, middle ear and accessory sinuses	20
161	Malignant neoplasm of larynx	140

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
162	Malignant neoplasm of trachea, bronchus and lung	4572
163	Malignant neoplasm of pleura	9
164	Malignant neoplasm of thymus, heart and mediastinum	7
165	Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs	1
170	Malignant neoplasm of bone and articular cartilage	34
171	Malignant neoplasm of connective and other soft tissue	112
172	Malignant melanoma of skin	165
173	Other malignant neoplasm of skin	49
174	Malignant neoplasm of female breast	1514
175	Malignant neoplasm of male breast	8
179	Malignant neoplasm of uterus, part unspecified	136
180	Malignant neoplasm of cervix uteri	151
182	Malignant neoplasm of body of uterus	109
183	Malignant neoplasm of ovary and other uterine adnexa	424
184	Malignant neoplasm of other and unspecified female genital organs	35
185	Malignant neoplasm of prostate	963
186	Malignant neoplasm of testis	19
187	Malignant neoplasm of penis and other male genital organs	5
188	Malignant neoplasm of bladder	392
189	Malignant neoplasm of kidney and other and unspecified urinary organs	336
190	Malignant neoplasm of eye	13
191	Malignant neoplasm of brain	467
192	Malignant neoplasm of other and unspecified parts of nervous system	13
193	Malignant neoplasm of thyroid gland	22
194	Malignant neoplasm of other endocrine glands and related structures	28
195	Malignant neoplasm of other and ill-defined sites	100
199	Malignant neoplasm without specification of site	1117
200	Lymphosarcoma and reticulosarcoma	122
201	Hodgkin's disease	82
202	Other malignant neoplasm of lympoid and histiocytic tissue	425
203	Multiple myeloma and immunoproliferative neoplasms	298
204	Lymphoid leukemia	203
205	Myeloid leukemia	291
206	Monocytic leukemia	15
207	Other specified leukemia	11
208	Leukemia of unspecified cell type	181
211	Benign neoplasm of other parts of digestive system	6
212	Benign neoplasm of respiratory and intrathoracic organs	4
213	Benign neoplasm of bone and articular cartilage	1
215	Other benign neoplasm of connective and other soft tissue	2
216	Benign neoplasm of skin	2
218	Uterine leiomyoma	1
220	Benign neoplasm of ovary	1
225	Benign neoplasm of brain and other parts of nervous system	38
226	Benign neoplasm of thyroid gland	1
227	Benign neoplasm of other endocrine glands and related structures	4
228	Hemangioma and lymphangioma, any site	3
229	Benign neoplasm of other and unspecified sites	1
235	Neoplasm of uncertain behavior of digestive and respiratory systems	7
237	Neoplasm of uncertain behavior of endocrine glands and nervous system	8
238	Neoplasm of uncertain behavior of other and unspecified sites and tissues	35
239	Neoplasm of unspecified nature	43
	III. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS (240-279)	
240	Simple and unspecified goitre	1
241	Nontoxic nodular goitre	2
242	Thyrotoxicosis with or without goitre	4
244	Acquired hypothyroidism	18
245	Thyroiditis	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
250	Diabetes mellitus	1387
251	Other disorders of pancreatic internal secretion	6
252	Disorders of parathyroid gland	1
253	Disorders of the pituitary gland and its hypothalamic control	4
255	Disorders of adrenal glands	4
259	Other endocrine disorders	5
260	Kwashiorkor	3
261	Nurtritional marasmus	12
262	Other severe protein-calorie malnutrition	2
263	Other and unspecified protein-calorie malnutrition	107
270	Disorders of amino-acid transport and metabolism	5
271	Disorders of carbohydrate transport and metabolism	2
272	Disorders of lipoid metabolism	16
273	Disorders of plasma protein metabolism	15
274	Gout	4
275	Disorders of mineral metabolism	13
276	Disorders of fluid, electrolyte and acid-base balance	209
277	Other and unspecified disorders of metabolism	69
278	Obesity and other hyperalimentation	58
279	Disorders involving the immune mechanism	53
	IV. DISEASES OF BLOOD AND BLOOD-FORMING ORGANS (280-289)	
281	Other deficiency anemias	5
282	Hereditary hemolytic anemias	20
283	Acquired hemolytic anemias	5
284	Aplastic anemia	56
285	Other and unspecified anemias	65
286	Coagulation defects	45
287	Purpura and other hemorrhagic conditions	18
288	Diseases of white blood cells	20
289	Other diseases of blood and blood-forming organs	62
	V. MENTAL DISORDERS (290-319)	
290	Senile and presenile organic psychotic conditions	91
291	Alcoholic psychoses	10
295	Schizophrenic psychoses	11
296	Affective psychoses	2
298	Other nonorganic psychoses	27
300	Neurotic disorders	6
303	Alcohol dependence syndrome	123
304	Drug dependence	42
305	Nondependent abuse of drugs	225
307	Special symptoms or syndromes not elsewhere classified	2
308	Acute reaction to stress	3
310	Specific nonpsychotic mental disorders following organic brain damage	140
311	Depressive disorder, not elswhere classified	8
318	Other specified mental retardation	4
319	Unspecified mental retardation	3
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Bacterial meningitis	19
322	Meningitis of unspecified cause	11
323	Encephalitis, myelitis and encephalomyelitis	12
324	Intracranial and intraspinal abscess	9
325	Phlebitis and thrombophlebitis of intracranial venous sinuses	2
330	Cerebral degenerations usually manifest in childhood	6
331	Other cerebral degenerations	252
332	Parkinson's disease	160
333	Other extrapyramidal disease and abnormal movement disorders	21
334	Spinocerebellar disease	14
335	Anterior horn cell disease	149
336	Other diseases of spinal cord	5
337	Disorders of the autonomic nervous system	2
340	Multiple sclerosis	91
341	Other demyelinating diseases of central nervous system	4

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
342	Hemiplegia	6
343	Infantile cerebral palsy	28
344	Other paralytic syndromes	17
345	Epilepsy	116
348	Other conditions of brain	133
349	Other and unspecified disorders of the nervous system	11
354	Mononeuritis of upper limb and mononeuritis multiplex	1
355	Mononeuritis of lower limb	2
356	Hereditary and idiopathic peripheral neuropathy	15
357	Inflammatory and toxic neuropathy	4
358	Myoneural disorders	9
359	Muscular dystrophies and other myopathies	28
382	Suppurative and unspecified otitis media	1
383	Mastoiditis and related conditions	1
	VII. DISEASES OF THE CIRCULATORY SYSTEM (390-459)	
391	Rheumatic fever with heart involvement	2
394	Diseases of mitral valve	101
395	Diseases of aortic valve	11
396	Diseases of mitral and aortic valves	44
397	Diseases of other endocardial structures	19
398	Other rheumatic heart disease	92
401	Essential hypertension	126
402	Hypertensive heart disease	686
403	Hypertensive renal disease	140
404	Hypertensive heart and renal disease	91
410	Acute myocardial infarction	11225
411	Other acute and subacute form of ischemic heart disease	48
412	Old myocardial infarction	36
413	Angina pectoris	32
414	Other forms of chronic ischemic heart disease	10594
415	Acute pulmonary heart disease	276
416	Chronic pulmonary heart disease	99
417	Other diseases of pulmonary circulation	2
420	Acute pericarditis	2
421	Acute and subacute endocarditis	43
422	Acute myocarditis	11
423	Other diseases of pericardium	18
424	Other diseases of endocardium	320
425	Cardiomyopathy	573
426	Conduction disorders	31
427	Cardiac dysrhythmias	1332
428	Heart failure	1285
429	Ill-defined descriptions and complications of heart disease	3645
430	Subarachnoid hemorrhage	262
431	Intracerebral hemorrhage	622
432	Other and unspecified intracranial hemorrhage	111
433	Occlusion and stenosis of precerebral arteries	59
434	Occlusion of cerebral arteries	1171
435	Transient cerebral ischemia	15
436	Acute but ill-defined cerebrovascular disease	2579
437	Other and ill-defined cerebrovascular disease	389
438	Late effects of cerebrovascular disease	320
440	Atherosclerosis	1173
441	Aortic aneurysm	595
442	Other aneurysm	34
443	Other peripheral vascular disease	90
444	Arterial embolism and thrombosis	51
446	Polyarteritis nodosa and allied conditions	28
447	Other disorders of arteries and arterioles	57
451	Phlebitis and thrombophlebitis	68
453	Other venous embolism and thrombosis	19
454	Varicose veins of lower extremities	5
456	Varicose veins of other sites	18
457	Noninfective disorders of lymphatic channels	1
458	Hypotension	39
459	Other disorders of circulatory system	29

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	
462	Acute pharyngitis	1
464	Acute laryngitis and tracheitis	4
465	Acute upper respiratory infections of multiple or unspecified sites	8
466	Acute bronchitis and bronchiolitis	17
473	Chronic sinusitis	1
475	Peritonsillar abscess	1
478	Other diseases of upper respiratory tract	13
480	Viral pneumonia	19
481	Pneumococcal pneumonia	64
482	Other bacterial pneumonia	90
483	Pneumonia due to other specified organism	11
485	Bronchopneumonia, organism unspecified	206
486	Pneumonia, organism unspecified	1803
487	Influenza	36
490	Bronchitis, not specified as acute or chronic	23
491	Chronic bronchitis	117
492	Emphysema	648
493	Asthma	145
494	Bronchiectasis	21
495	Extrinsic allergic alveolitis	2
496	Chronic airways obstruction, not elsewhere classified	1806
500	Coalworkers' pneumoconiosis	3
501	Asbestosis	2
502	Pneumoconiosis due to other silica or silicates	5
505	Pneumoconiosis, unspecified	3
506	Respiratory conditions due to chemical fumes and vapors	1
507	Pneumonitis due to solids and liquids	204
508	Respiratory conditions due to other and unspecified external agents	2
510	Empyema	22
511	Pleurisy	33
512	Pneumothorax	9
513	Abscess of lung and mediastinum	24
514	Pulmonary congestion and hypostasis	27
515	Postinflammatory pulmonary fibrosis	151
516	Other alveolar and parietoalveolar pneumopathy	37
518	Other diseases of lung	188
519	Other diseases of respiratory system	45
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-579)	
523	Gingival and periodontal diseases	1
527	Diseases of the salivary glands	1
530	Diseases of oesophagus	45
531	Gastric ulcer	100
532	Duodenal ulcer	84
533	Peptic ulcer, site unspecified	95
534	Gastrojejunal ulcer	3
535	Gastritis and duodenitis	29
536	Disorders of function of stomach	2
537	Other disorders of stomach and duodenum	17
540	Acute appendicitis	21
541	Appendicitis, unqualified	1
550	Inguinal hernia	9
551	Other hernia of abdominal cavity, with gangrene	5
552	Other hernia of abdominal cavity with obstruction, without mention of gangrene	17
553	Other hernia of abdominal cavity without mention of obstruc[illegible] or gangrene	15
555	Regional enteritis	12
556	Idiopathic proctocolitis	9
557	Vascular insufficiency of intestine	222
558	Other noninfective gastroenteritis and colitis	37
560	Intestinal obstruction without mention of hernia	170
562	Diverticula of intestine	99

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
564	Functional digestive disorders, not elsewhere classified	5
565	Anal fissure and fistula	1
566	Abscess of anal and rectal regions	6
567	Peritonitis	72
568	Other disorders of peritoneum	9
569	Other disorders of intestine	66
570	Acute and subacute necrosis of liver	25
571	Chronic liver disease and cirrhosis	1256
572	Liver abscess and sequelae of chronic liver disease	136
573	Other disorders of liver	44
574	Cholelithiasis	41
575	Other disorders of gallbladder	67
576	Other disorders of biliary tract	48
577	Diseases of pancreas	87
578	Gastrointestinal hemorrhage	178
579	Intestinal malabsorption	9
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute glomerulonephritis	2
581	Nephrotic syndrome	7
582	Chronic glomerulonephritis	36
583	Nephritis and nephropathy, not specified as acute or chronic	13
584	Acute renal failure	134
585	Chronic renal failure	190
586	Renal failure, unspecified	339
587	Renal sclerosis, unspecified	2
588	Disorders resulting from impaired renal function	2
590	Infections of kidney	44
591	Hydronephrosis	1
592	Calculus of kidney and ureter	6
593	Other disorders of kidney and ureter	57
594	Calculus of lower urinary tract	1
595	Cystitis	12
596	Other disorders of bladder	5
598	Urethral stricture	1
599	Other disorders of urethra and urinary tract	265
600	Hyperplasia of prostate	17
601	Inflammatory diseases of prostate	2
602	Other disorders of prostate	6
604	Orchitis and epididymitis	2
608	Other disorders of male genital organs	1
611	Other disorders of breast	1
614	Inflammatory disease of ovary, fallopian tube, pelvic cellular, tissue and peritoneum	9
615	Inflammatory diseases of uterus, except cervix	1
616	Inflammatory disease of cervix, vagina and vulva	1
618	Genital prolapse	1
619	Fistulae involving female genital tract	3
620	Noninflammatory disorders of ovary, fallopian tube and broad ligament	2
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-676)	
642	Hypertension complicating pregnancy, childbirth and the puerperium	1
646	Other complications of pregnancy, not elsewhere classified	1
648	Other current conditions in the mother classifiable elsewhere but complicating pregnancy, childbirth and the puerperium	1
669	Other complications of labor and delivery, not elsewhere classified	2
671	Venous complications in pregnancy and the puerperium	1
673	Obstetrical pulmonary embolism	1
674	Other and unspecified complications of the puerperium, not elsewhere classified	2

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
682	Other cellulitis and abscess	16
686	Other local infections of skin and subcutaneous tissue	5
694	Bullous dermatoses	6
695	Erythematous conditions	10
707	Chronic ulcer of skin	100
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-739)	
710	Diffuse diseases of connective tissue	79
711	Arthropathy associated with infections	6
714	Rheumatoid arthritis and other inflammatory polyarthropathies	58
715	Osteoarthrosis and allied disorders	13
716	Other and unspecified arthropathies	11
718	Other derangement of joint	2
722	Intervertebral disc disorders	2
728	Disorders of muscle, ligament and fascia	2
729	Other disorders of soft tissues	7
730	Osteomyelitis, periostitis and other infections involving bone	13
731	Osteitis deformans and osteopathies associated with other disorders classified elsewhere	2
733	Other disorders of bone and cartilage	18
737	Curvature of spine	2
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus and similar anomalies	28
741	Spina bifida	3
742	Other congenital anomalies of nervous system	38
744	Congenital anomalies of ear, face and neck	1
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	44
746	Other congenital anomalies of heart	123
747	Other congenital anomalies of circulatory system	43
748	Congenital anomalies of respiratory system	43
750	Other congenital anomalies of upper alimentary tract	2
751	Other congenital anomalies of digestive system	5
753	Congenital anomalies of urinary system	33
755	Other congenital anomalies of limbs	2
756	Other congenital musculoskeletal anomalies	32
757	Congenital anomalies of the integument	2
758	Chromosomal anomalies	47
759	Other and unspecified congenital anomalies	48
	XV. CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (760-779)	
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	5
761	Fetus or newborn affected by maternal complications of pregnancy	52
762	Fetus or newborn affected by complications of placenta, cord and membranes	34
763	Fetus or newborn affected by other complications of labor and delivery	2
764	Slow fetal growth and fetal malnutrition	5
765	Disorders relating to short gestation and unspecified low birthweight	150
767	Birth trauma	14
768	Intrauterine hypoxia and birth asphyxia	46
769	Respiratory distress syndrome	177
770	Other respiratory conditions of fetus and newborn	139
771	Infections specific to the perinatal period	32
772	Fetal and neonatal hemorrhage	10
774	Other perinatal jaundice	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
775	Endocrine and metabolic disturbances specific to the fetus and newborn	1
776	Hematological disorders of fetus and newborn	6
777	Perinatal disorders of digestive system	13
778	Conditions involving the integument and temperature regulation of fetus and newborn	6
779	Other and ill-defined conditions originating in the perinatal period	132
	XVI. SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS (780-799)	
780	General symptoms	18
785	Symptoms involving cardiovascular system	26
786	Symptoms involving respiratory system and other chest symptoms	7
790	Nonspecific findings on examination of blood	1
797	Senility without mention of psychosis	11
798	Sudden death, cause unknown	246
799	Other ill-defined and unknown causes of morbidity and mortality	87
	EXVII. EXTERNAL CAUSES OF INJURY AND POISONING (E800-E999)	
E805	Hit by rolling stock	9
E810	Motor vehicle traffic accident involving collision with train	39
E812	Other motor vehicle traffic accident involving collision with another motor vehicle	757
E813	Motor vehicle traffic accident involving collision with other vehicle	45
E814	Motor vehicle traffic accident involving collision with pedestrian	263
E815	Other motor vehicle traffic accident involving collision on the highway	155
E816	Motor vehicle traffic accident due to loss of control, without collision on the highway	282
E818	Other noncollision motor vehicle traffic accident	23
E819	Motor vehicle traffic accident of unspecified nature	79
E820	Nontraffic accident involving motor-driven snow vehicle	2
E821	Nontraffic accident involving other off-road motor vehicle	6
E822	Other motor vehicle nontraffic accident involving collision with moving object	17
E823	Other motor vehicle nontraffic accident involving collision with stationary object	4
E825	Other motor vehicle nontraffic accident of other and unspecified nature	4
E826	Pedal cycle accident	5
E827	Animal-drawn vehicle accident	2
E828	Accident involving animal being ridden	1
E830	Accident to watercraft causing submersion	18
E831	Accident to watercraft causing other injury	5
E832	Other accidental submersion or drowning in water transport accident	25
E838	Other and unspecified water transport accident	2
E840	Accident to powered aircraft at takeoff or landing	7
E841	Accident to powered aircraft, other and unspecified	32
E844	Other specified air transport accidents	3
E846	Accidents involving powered vehicles used solely within the buildings and premises of an industrial or commercial establishment	1
E850	Accidental poisoning by analgesics, antipyretics, antirheumatics	11
E851	Accidental poisoning by barbiturates	2
E853	Accidental poisoning by tranquillizers	5
E854	Accidental poisoning by other psychotropic agents	2
E855	Accidental poisoning by other drugs acting on central and autonomic nervous systems	7
E856	Accidental poisoning by antibiotics	4
E857	Accidental poisoning by anti-infectives	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E858	Accidental poisoning by other drugs	39
E860	Accidental poisoning by alcohol, not elsewhere classified	8
E862	Accidantal poisoning by petroleum products, other solvents and their vapors, not elsewhere classified	3
E866	Accidental poisoning by other and unspecified solid and liquid substances	1
E868	Accidental poisoning by other utility gas and other carbon monoxide	48
E869	Accidental poisoning by other gases and vapors	4
E870	Accidental cut, puncture, perforation or hemorrhage during medical care	6
E871	Foreign object left in body during procedure	1
E876	Other and unspecified misadventures during medical care	6
E878	Surgical operation and other surgical procedures as the cause of abnormal reaction of patient, or of later complication, without mention of misadven	39
E879	Other procedures, without mention of misadventure at the time of procedure, as the cause of abnormal reaction of patient, or of later complication	10
E880	Fall on or from stairs or steps	59
E881	Fall on or from ladders or scaffolding	15
E882	Fall from or out of building or other structure	22
E883	Fall into hole or other opening in surface	6
E884	Other fall from ono level to another	20
E885	Fall on same level from slipping, tripping or stumbling	12
E887	Fracture, cause unspecified	140
E888	Other and unspecified fall	153
E890	Conflagration in private dwelling	199
E891	Conflagration in other and unspecified building or structure	18
E892	Conflagration not in building or structure	3
E893	Accident caused by ignition of clothing	6
E894	Ignition of highly inflammable material	2
E898	Accident caused by other specified fire and flames	11
E839	Accident caused by unspecified fire	1
E900	Excessive heat	2
E901	Excessive cold	56
E904	Hunger, thirst, exposure, neglect	13
E905	Venomous animals and plants as the cause of poisoning and toxic reactions	1
E906	Other injury caused by animals	7
E907	Lightning	4
E908	Cataclysmic storms, and floods resulting from storms	1
E910	Accidental drowning and submersion	134
E911	Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation	57
E912	Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	53
E913	Accidental mechanical suffocation	24
E915	Foreign body accidentally entering other orifice	1
E916	Struck accidentally by falling object	31
E917	Striking against or struck accidentally by objects or persons	9
E918	Caught accidentally in or between objects	2
E919	Accidents caused by machinery	38
E920	Accidents caused by cutting and piercing instruments or objects	3
E922	Accident caused by firearm missile	35
E923	Accident caused by explosive material	7
E924	Accident caused by hot substance or object, caustic or corrosive material and steam	8
E925	Accident caused by electric current	20
E927	Overexertion and strenuous movements	1
E928	Other and unspecified environmental and accidental causes	43
E929	Late effects of accidental injury	24
E938	Other central nervous system depressants	1
E947	Other and unspecified drugs and medicaments	3
E350	Suicide and selfinflicted poisoning by solid or liquid substances	110
E952	Suicide and selfinflicted poisoning by other gases and vapors	135

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1985 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E953	Suicide and selfinflicted injury by hanging, strangulation and suffocation	204
E954	Suicide and selfinflicted injury by submersion {drowning}	23
E955	Suicide and selfinflicted injury by firearms and explosives	584
E956	Suicide and selfinflicted injury by cutting and piercing instruments	11
E957	Suicide and selfinflicted injuries by jumping from high place	11
E958	Suicide and selfinflicted injury by other and unspecified means	10
E962	Assault by poisoning	4
E963	Assault by hanging and strangulation	42
E964	Assault by submersion [drowning]	7
E965	Assault by firearms and explosives	676
E966	Assault by cutting and piercing instrument	176
E967	Child battering and other maltreatment	9
E968	Assualt by other and unspecified means	131
E970	Injury due to legal intervention by firearms	17
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	62
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	6
E983	Hanging, strangulation or suffocation, undetermined whether accidentally or purposely inflicted	2
E984	Submersion [drowning], undetermined whether accidentally or purposely inflicted	13
E985	Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted	8
E986	Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted	1
E988	Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted	9

Table 4.17
Population Changes by County, Michigan, 1975 and 1985

AREA	POPULATION ESTIMATE JULY 1, 1975	POPULATION ESTIMATE JULY 1, 1985	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Michigan	9107933	9088341	-19592	-0.2	633997	-653589
Alcona	8686	9983	1297	14.9	-178	1475
Alger	8762	8766	4	0.0	317	-313
Allegan	73970	85282	11312	15.3	6914	4398
Alpena	32246	31105	-1141	-3.5	1940	-3081
Antrim	15310	16752	1442	9.4	589	853
Arenac	13336	15011	1675	12.6	636	1039
Baraga	8143	8200	57	0.7	257	-200
Barry	42338	46895	4557	10.8	3229	1328
Bay	120447	115327	-5120	-4.3	8731	-13851
Benzie	10070	11153	1083	10.8	331	752
Berrien	173398	162837	-10561	-6.1	11828	-22389
Branch	39015	38806	-209	-0.5	2569	-2778
Calhoun	142639	136491	-6148	-4.3	8741	-14889
Cass	47484	48420	936	2.0	2818	-1882
Charlevoix	18469	19750	1281	6.9	1313	-32
Cheboygan	19316	20661	1345	7.0	1035	310
Chippewa	36352	29058	-7294	-20.1	1881	-9175
Clare	20923	24721	3798	18.2	683	3115
Clinton	53087	55341	2254	4.2	5189	-2935
Crawford	8260	9906	1646	19.9	682	964
Delta	38588	38840	252	0.7	2187	-1935
Dickinson	24879	26523	1644	6.6	628	1016
Eaton	79863	89923	10060	12.6	6684	3376
Emmet	21747	23699	1952	9.0	1219	733
Genesee	446850	433922	-12928	-2.9	39399	-52327
Gladwin	17041	21392	4351	25.5	759	3592
Gogebic	21222	19040	-2182	-10.3	-514	-1668
Gd. Traverse	46330	57602	11272	24.3	4382	6890
Gratiot	40309	39442	-867	-2.2	2600	-3467
Hillsdale	40467	41843	1376	3.4	2562	-1186
Houghton	38082	37801	-281	-.7	632	-913
Huron	36268	36302	34	0.1	1682	-1648
Ingham	265674	273205	7531	2.8	27515	-19984
Ionia	48232	52763	4531	9.4	4634	-103
Iosco	27617	30331	2714	9.8	2972	-258
Iron	13833	14129	296	2.1	-281	577
Isabella	50130	54158	4028	8.0	4086	-58
Jackson	147906	143746	-4160	-2.8	8805	-12965
Kalamazoo	203710	215462	11752	5.8	16496	-4744
Kalkaska	7502	11627	4125	55.0	997	3128
Kent	421159	467764	46605	11.1	44823	1782

Table 4.17
Population Changes by County, Michigan, 1975 and 1985 (Cont.)

AREA	POPULATION ESTIMATE JULY 1, 1975	POPULATION ESTIMATE JULY 1, 1985	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Keweenaw	2014	2136	122	6.1	-110	232
Lake	7049	8535	1486	21.1	-71	1557
Lapeer	61481	69319	7838	12.7	6259	1579
Leelanau	12631	14728	2097	16.6	610	1487
Lenawee	88047	88443	396	0.4	6641	-6245
Livingston	76531	101847	25316	33.1	7888	17428
Luce	6887	5946	-941	-13.7	204	-1145
Mackinac	10316	10334	18	0.2	326	-308
Macomb	657369	689681	32312	4.9	46438	-14126
Manistee	22071	22323	252	1.1	239	13
Marquette	69397	72059	2662	3.8	8024	-5362
Mason	24878	26362	1484	6.0	1109	375
Mecosta	34408	37542	3134	9.1	2115	1019
Menominee	25232	25866	634	2.5	870	-236
Midland	68629	75193	6564	9.6	7008	-444
Missaukee	8630	10770	2140	24.8	908	1232
Monroe	126300	130709	4409	3.5	10324	-5915
Montcalm	44313	50300	5987	13.5	3451	2536
Montmorency	6777	7778	1001	14.8	111	890
Muskegon	156272	156658	386	0.2	11933	-11547
Newaygo	31796	36801	5005	15.7	2281	2724
Oakland	957279	1014102	56823	5.9	65522	-8699
Oceana	21204	22477	12[illegible]	6.0	1590	-317
Ogemaw	14626	17424	27[illegible]	19.1	442	2356
Ontonagon	11347	9213	-2134	-18.8	91	-2225
Osceola	17533	20206	2673	15.2	1230	1443
Oscoda	5878	6967	1089	18.5	132	957
Otsego	13180	15373	2193	16.6	1260	933
Ottawa	140522	167185	26663	19.0	16572	10091
Presque Isle	14047	13905	-142	-1.0	591	-733
Roscommon	14239	18418	4179	29.3	-34	4213
Saginaw	225720	216914	-8806	-3.9	19387	-28193
St. Clair	131772	138636	6864	5.2	8197	-1333
St. Joseph	52364	58532	6168	11.8	4274	1894
Sanilac	39205	39965	760	1.9	2147	-1387
Schoolcraft	8504	8385	-119	-1.4	244	-363
Shiawassee	68998	68493	-505	-0.7	6160	-6665
Tuscola	53622	55009	1387	2.6	4126	-2739
Van Buren	63265	66580	3315	5.2	4686	-1371
Washtenaw	251024	262579	11555	4.6	24179	-12624
Wayne	2510011	2174338	-335673	-13.4	123432	-459105
Wexford	22905	26331	3426	15.0	1542	1884
County Not Stated	-	-	-	-	-103	103

Table 4.18
Population by Age, Race, and Sex, Michigan Residents, 1985

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	133780	68186	65593	109132	55790	53342	24647	12396	12251
1-4	473935	242869	231066	379106	195044	184062	94829	47825	47004
5-9	614442	315127	299316	473595	244341	229254	140847	70786	70061
10-14	694819	355794	339024	559893	287966	271928	134925	67829	67097
15-19	880283	446483	433800	742655	378275	364380	137628	68208	69420
20-24	944704	474066	470639	803895	407607	396288	140810	66459	74351
25-29	869820	430482	439339	733513	368682	364831	136308	61800	74508
30-34	777674	382759	394915	658971	328501	330470	118703	54257	64445
35-39	582811	288082	294729	502666	250361	252305	80145	37721	42424
40-44	419579	204358	215221	364427	179331	185096	55152	25027	30125
45-49	392495	189187	203308	339627	166022	173605	52867	23165	29702
50-54	470707	229784	240924	411673	202780	208893	59034	27004	32031
55-59	480093	227931	252162	423546	201447	222099	56547	26484	30063
60-64	403618	186449	217169	358635	166038	192597	44983	20411	24573
65-69	331820	147850	183970	294560	131539	163020	37261	16311	20950
70-74	243161	101649	141511	217655	90680	126975	25506	10969	14536
75-79	172808	66417	106390	155165	59124	96041	17643	7293	10349
80-84	109515	36992	72523	100153	33411	66741	9363	3580	5782
85+	92277	27805	64472	85385	25608	59777	6892	2197	4695
TOTAL	9088341	4422269	4666072	7714250	3772546	3941704	1374091	649723	724368

Source: The estimate of the total state population was provided by the Department of Management and Budget, Office of Revenue and Tax Analysis The breakdown of the total population by age, race, and sex was prepared by the Department of Public Health, Office of the State Registrar and Center for Health Statistics See Technical Notes

Table 4.19
Abridged Life Table, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01177	100000	1177	98959	7371568	73.7
1-5	0.00266	98823	262	394650	7272610	73.6
5-10	0.00149	98560	147	492398	6877960	69.8
10-15	0.00146	98414	143	491757	6385562	64.9
15-20	0.00379	98271	372	490488	5893805	60.0
20-25	0.00460	97899	450	488399	5403317	55.2
25-30	0.00526	97449	512	486017	4914918	50.4
30-35	0.00724	96937	701	483031	4428901	45.7
35-40	0.01035	96235	996	478865	3945871	41.0
40-45	0.01637	95239	1559	472536	3467006	36.4
45-50	0.02278	93680	2133	463285	2994469	32.0
50-55	0.02833	91547	2593	451696	2531184	27.6
55-60	0.04784	88954	4256	435013	2079488	23.4
60-65	0.08058	84699	6824	407471	1644475	19.4
65-70	0.11870	77874	9243	367489	1237003	15.9
70-75	0.18511	68631	12704	312533	869515	12.7
75-80	0.26284	55927	14699	243472	556982	10.0
80-85	0.37622	41228	15510	166921	313510	7.6
85+	1.00000	25717	25717	146589	146589	5.7

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.20
Abridged Life Table for Males, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01361	100000	1361	98793	7014105	70.1
1-5	0.00319	98639	315	393772	6915312	70.1
5-10	0.00164	98324	161	491179	6521540	66.3
10-15	0.00184	98164	181	490443	6030361	61.4
15-20	0.00538	97983	527	488699	5539918	56.5
20-25	0.00682	97456	664	485664	5051219	51.8
25-30	0.00755	96792	730	482200	4565555	47.2
30-35	0.01011	96062	971	478004	4083355	42.5
35-40	0.01380	95091	1312	472397	3605351	37.9
40-45	0.02161	93779	2026	464121	3132954	33.4
45-50	0.02950	91753	2707	452263	2668833	29.1
50-55	0.03701	89046	3295	437539	2216570	24.9
55-60	0.06199	85752	5315	416534	1779031	20.7
60-65	0.10444	80436	8401	382416	1362497	16.9
65-70	0.15615	72036	11248	333474	980081	13.6
70-75	0.24995	60788	15194	266871	646607	10.6
75-80	0.34314	45594	15645	188715	379736	8.3
80-85	0.48431	29949	14505	112252	191021	6.4
85+	1.00000	15445	15445	78768	78768	5.1

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.21
Abridged Life Table for Females, Michigan Residents, 1985

Age	nqx(1)[1]	1x(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.00986	100000	986	99132	7726022	77.3
1-5	0.00210	99014	207	395565	7626890	77.0
5-10	0.00134	98806	132	493669	7231325	73.2
10-15	0.00105	98675	103	493131	6737656	68.3
15-20	0.00215	98571	211	492355	6244525	63.4
20-25	0.00236	98360	232	491239	5752170	58.5
25-30	0.00302	98128	296	489946	5260931	53.6
30-35	0.00445	97833	435	488156	4770986	48.8
35-40	0.00697	97398	679	485431	4282829	44.0
40-45	0.01137	96719	1100	481033	3797399	39.3
45-50	0.01647	95619	1575	474323	3316365	34.7
50-55	0.01999	94045	1880	465866	2842043	30.2
55-60	0.03490	92165	3216	453499	2376177	25.8
60-65	0.05963	68949	5304	432343	1922677	21.6
65-70	0.08753	83646	7321	400974	1490334	17.8
70-75	0.13547	76324	10339	357112	1089360	14.3
75-80	0.20833	65985	13746	296821	732248	11.1
80-85	0.31391	52239	16398	220382	435427	8.3
85+	1.00000	35841	35841	215045	215045	6.0

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.22
Abridged Life Table for Whites, Michigan Residents, 1985

Age	nqx(1)[1]	1x(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.00966	100000	966	99152	7461996	74.6
1-5	0.00259	99034	256	395521	7362844	74.3
5-10	0.00153	98778	151	493477	6967323	70.5
10-15	0.00140	98627	137	492828	6473846	65.6
15-20	0.00319	98490	314	491717	5981018	60.7
20-25	0.00392	98176	384	489940	5489301	55.9
25-30	0.00412	97792	403	487978	4999362	51.1
30-35	0.00511	97390	497	485786	4511383	46.3
35-40	0.00808	96893	783	482671	4025598	41.5
40-45	0.01333	96110	1280	477584	3542927	36.9
45-50	0.02008	94830	1904	469623	3065343	32.3
50-55	0.02590	92926	2407	459060	2595720	27.9
55-60	0.04479	90519	4054	443331	2136660	23.6
60-65	0.07619	86465	6587	416921	1693330	19.6
65-70	0.11474	79878	9165	377767	1276408	16.0
70-75	0.18087	70713	12789	322832	898641	12.7
75-80	0.26116	57923	15127	252476	575809	9.9
80-85	0.37466	42797	16034	173462	323334	7.6
85+	1.00000	26763	26763	149871	149871	5.6

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.23
Abridged Life Table for White Males, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01094	100000	1094	99029	7123631	71.2
1-5	0.00326	98906	322	394821	7024602	71.0
5-10	0.00164	98585	161	492479	6629781	67.2
10-15	0.00172	98423	169	491748	6137301	62.4
15-20	0.00428	98254	420	490304	5645554	57.5
20-25	0.00579	97834	566	487788	5155250	52.7
25-30	0.00589	97268	572	484935	4667462	48.0
30-35	0.00711	96696	687	481855	4182527	43.3
35-40	0.01054	96009	1011	477716	3700672	38.5
40-45	0.01724	94998	1637	471187	3222956	33.9
45-50	0.02574	93361	2403	461102	2751769	29.5
50-55	0.03408	90958	3100	447613	2290667	25.2
55-60	0.05854	87859	5143	427499	1843054	21.0
60-65	0.09911	82716	8198	394365	1415555	17.1
65-70	0.15135	74519	11278	345918	1021191	13.7
70-75	0.24498	63241	15492	278541	675273	10.7
75-80	0.34347	47749	16400	197703	396732	8.3
80-85	0.48813	31348	15302	117192	199029	6.3
85+	1.00000	16047	16047	81837	81837	5.1

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.24
Abridged Life Table for White Females, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.00832	100000	832	99267	7795579	78.0
1-5	0.00187	99168	185	396255	7696312	77.6
5-10	0.00142	98982	140	494527	7300057	73.8
10-15	0.00105	98842	104	493966	6805530	68.9
15-20	0.00206	98739	203	493205	6311564	63.9
20-25	0.00198	98536	195	492196	5818359	59.0
25-30	0.00233	98341	229	491154	5326163	54.2
30-35	0.00312	98112	305	489863	4835008	49.3
35-40	0.00564	97806	551	487784	4345145	44.4
40-45	0.00953	97255	926	484142	3857361	39.7
45-50	0.01465	96330	1411	478282	3373219	35.0
50-55	0.01790	94919	1699	470679	2894937	30.5
55-60	0.03217	93220	2999	459303	2424258	26.0
60-65	0.05601	90221	5053	439345	1964956	21.8
65-70	0.08420	85169	7171	409011	1525611	17.9
70-75	0.13214	77998	10306	365636	1116600	14.3
75-80	0.20600	67692	13944	304925	750963	11.1
80-85	0.31014	53748	16669	227275	446039	8.3
85+	1.00000	37079	37079	218764	218764	5.9

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.25
Abridged Life Table for All Other, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.02115	100000	2115	98102	6846044	68.5
1-5	0.00295	97885	289	390807	6747942	68.9
5-10	0.00135	97597	132	487621	6357135	65.1
10-15	0.00171	97465	166	487024	5869514	60.2
15-20	0.00700	97299	680	484930	5382489	55.3
20-25	0.00850	96619	820	481128	4897559	50.7
25-30	0.01139	95798	1091	476467	4416432	46.1
30-35	0.01901	94707	1800	469283	3939964	41.6
35-40	0.02450	92907	2275	459159	3470681	37.4
40-45	0.03627	90632	3287	445195	3011523	33.2
45-50	0.03989	87345	3484	428120	2566328	29.4
50-55	0.04511	83861	3783	410300	2138208	25.5
55-60	0.07043	80079	5639	387289	1727908	21.6
60-65	0.11486	74440	8549	351699	1340619	18.0
65-70	0.14934	65890	9840	305645	988919	15.0
70-75	0.22047	56051	12357	249835	683274	12.2
75-80	0.27743	43693	12121	188171	433439	9.9
80-85	0.39265	31572	12397	126382	245268	7.8
85+	1.00000	19175	19175	118886	118886	6.2

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.26
Abridged Life Table for Other Males, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.02567	100000	2567	97771	6385641	63.9
1-5	0.00293	97433	285	389036	6287870	64.5
5-10	0.00163	97148	158	485308	5898834	60.7
10-15	0.00236	96991	229	484579	5413526	55.8
15-20	0.01146	96762	1108	481251	4928947	50.9
20-25	0.01310	95653	1252	475248	4447696	46.5
25-30	0.01743	94401	1645	468176	3972448	42.1
30-35	0.02812	92756	2608	457581	3504272	37.8
35-40	0.03522	90149	3174	443213	3046691	33.8
40-45	0.05241	86974	4558	423777	2603478	29.9
45-50	0.05606	82416	4619	400535	2179701	26.4
50-55	0.05869	77797	4566	377949	1779166	22.9
55-60	0.08787	73231	6435	351160	1401217	19.1
60-65	0.14674	66797	9801	310442	1050057	15.7
65-70	0.19390	56995	11051	258081	739615	13.0
70-75	0.28981	45944	13315	196445	481534	10.5
75-80	0.34023	32629	11101	134628	285089	8.7
80-85	0.44763	21528	9636	82678	150461	7.0
85+	1.00000	11892	11892	67783	67783	5.7

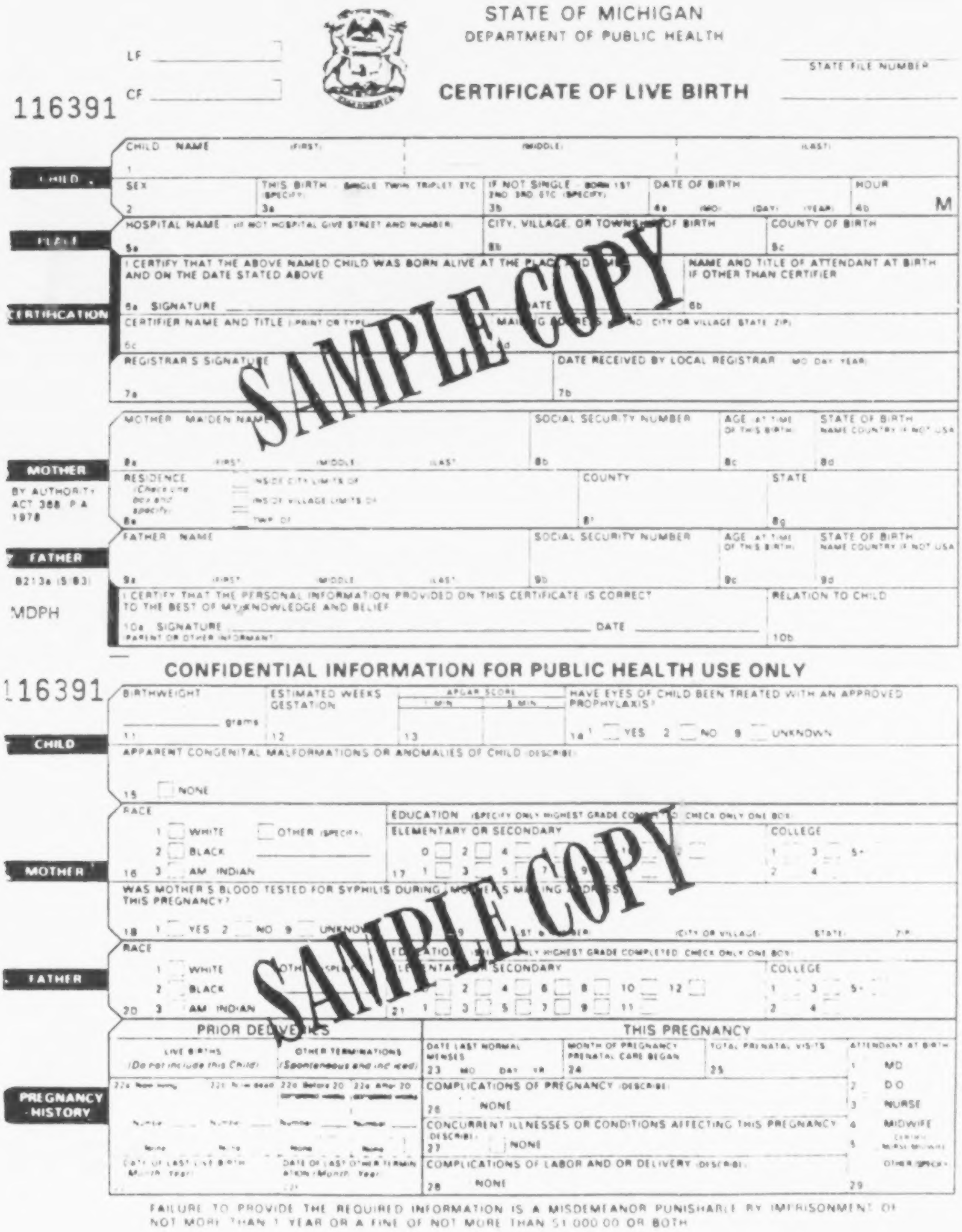
[1] Definitions of life table values are contained in the Technical Notes.

Table 4.27
Abridged Life Table for Other Females, Michigan Residents, 1985

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01657	100000	1657	98505	7311095	73.1
1-5	0.00298	98343	292	392599	7212591	73.3
5-10	0.00108	98050	105	489963	6819992	69.6
10-15	0.00105	97945	102	489503	6330028	64.6
15-20	0.00260	97843	253	488650	5840525	59.7
20-25	0.00437	97590	426	486961	5351875	54.8
25-30	0.00636	97164	618	484414	4864915	50.1
30-35	0.01127	96546	1088	480178	4380501	45.4
35-40	0.01487	95458	1419	473960	3900323	40.9
40-45	0.02267	94039	2131	465091	3426362	36.4
45-50	0.02709	91908	2489	453497	2961271	32.2
50-55	0.03351	89419	2996	440073	2507774	28.0
55-60	0.05480	86423	4736	421142	2067701	23.9
60-65	0.08756	81687	7152	391326	1646559	20.2
65-70	0.11309	74535	8428	352375	1255234	16.8
70-75	0.16408	66107	10846	304307	902858	13.7
75-80	0.22969	55260	12692	245470	598552	10.8
80-85	0.35617	42568	15161	174937	353082	8.3
85+	1.00000	27407	27407	178145	178145	6.5

[1] Definitions of life table values are contained in the Technical Notes.

FIGURE 4.3



STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

LF ______
CF ______

116391

CERTIFICATE OF LIVE BIRTH

STATE FILE NUMBER ______

CHILD

CHILD NAME (FIRST) (MIDDLE) (LAST) 1

SEX 2 | THIS BIRTH — SINGLE, TWIN, TRIPLET, ETC (SPECIFY) 3a | IF NOT SINGLE — BORN 1ST, 2ND, 3RD, ETC (SPECIFY) 3b | DATE OF BIRTH 4a (MO) (DAY) (YEAR) | HOUR 4b M

PLACE

HOSPITAL NAME (IF NOT HOSPITAL, GIVE STREET AND NUMBER) 5a | CITY, VILLAGE, OR TOWNS OF BIRTH 5b | COUNTY OF BIRTH 5c

CERTIFICATION

I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLAC AND ON THE DATE STATED ABOVE

6a SIGNATURE ______ ATE

NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER 6b

CERTIFIER NAME AND TITLE (PRINT OR TYPE) 6c | MAI G NO CITY OR VILLAGE STATE ZIP d

REGISTRAR S SIGNATURE 7a | DATE RECEIVED BY LOCAL REGISTRAR (MO DAY YEAR) 7b

SAMPLE COPY

MOTHER

BY AUTHORITY ACT 368 P A 1978

MOTHER MAIDEN NAME 8a (FIRST) (MIDDLE) (LAST) | SOCIAL SECURITY NUMBER 8b | AGE (AT TIME OF THIS BIRTH) 8c | STATE OF BIRTH NAME COUNTRY IF NOT USA 8d

RESIDENCE (Check one box and specify) 8e
☐ INSIDE CITY LIMITS OF
☐ INSIDE VILLAGE LIMITS OF
☐ TWP OF

COUNTY 8f | STATE 8g

FATHER

8213a (5/83)

MDPH

FATHER NAME 9a (FIRST) (MIDDLE) (LAST) | SOCIAL SECURITY NUMBER 9b | AGE (AT TIME OF THIS BIRTH) 9c | STATE OF BIRTH NAME COUNTRY IF NOT USA 9d

I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THIS CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

10a SIGNATURE (PARENT OR OTHER INFORMANT) ______ DATE ______

RELATION TO CHILD 10b

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

116391

CHILD

BIRTHWEIGHT ______ grams 11 | ESTIMATED WEEKS GESTATION 12 | APGAR SCORE 1 MIN 5 MIN 13 | HAVE EYES OF CHILD BEEN TREATED WITH AN APPROVED PROPHYLAXIS? 14 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN

APPARENT CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE)
15 ☐ NONE

MOTHER

RACE 16
1 ☐ WHITE ☐ OTHER (SPECIFY) ______
2 ☐ BLACK
3 ☐ AM INDIAN

EDUCATION (SPECIFY ONLY HIGHEST GRADE CO TO CHECK ONLY ONE BOX) 17
ELEMENTARY OR SECONDARY
0 ☐ 2 ☐ 4 ☐ 6 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

WAS MOTHER S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY?
18 1 ☐ YES 2 ☐ NO 9 ☐ UNKNO

MO S MA ING 19 ST & (CITY OR VILLAGE) (STATE) ZIP

SAMPLE COPY

FATHER

RACE 20
1 ☐ WHITE ☐ OTH
2 ☐ BLACK
3 ☐ AM INDIAN

ED ATIO LY HIGHEST GRADE COMPLETED CHECK ONLY ONE BOX 21
ENTA SECONDARY
☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ 10 ☐ 12 ☐
1 ☐ 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐
COLLEGE
1 ☐ 3 ☐ 5+ ☐
2 ☐ 4 ☐

PREGNANCY HISTORY

PRIOR DE

LIVE BIRTHS (Do not include this Child)
22a Now living Number ______ ☐ None
22b Now dead Number ______ ☐ None
DATE OF LAST LIVE BIRTH (Month Year) 22

OTHER TERMINATIONS (Spontaneous and induced)
22d Before 20 completed weeks Number ______ ☐ None
22e After 20 completed weeks Number ______ ☐ None
DATE OF LAST OTHER TERMINATION (Month Year) 22f

THIS PREGNANCY

DATE LAST NORMAL MENSES 23 MO DAY YR | MONTH OF PREGNANCY PRENATAL CARE BEGAN 24 | TOTAL PRENATAL VISITS 25

COMPLICATIONS OF PREGNANCY (DESCRIBE)
26 ☐ NONE

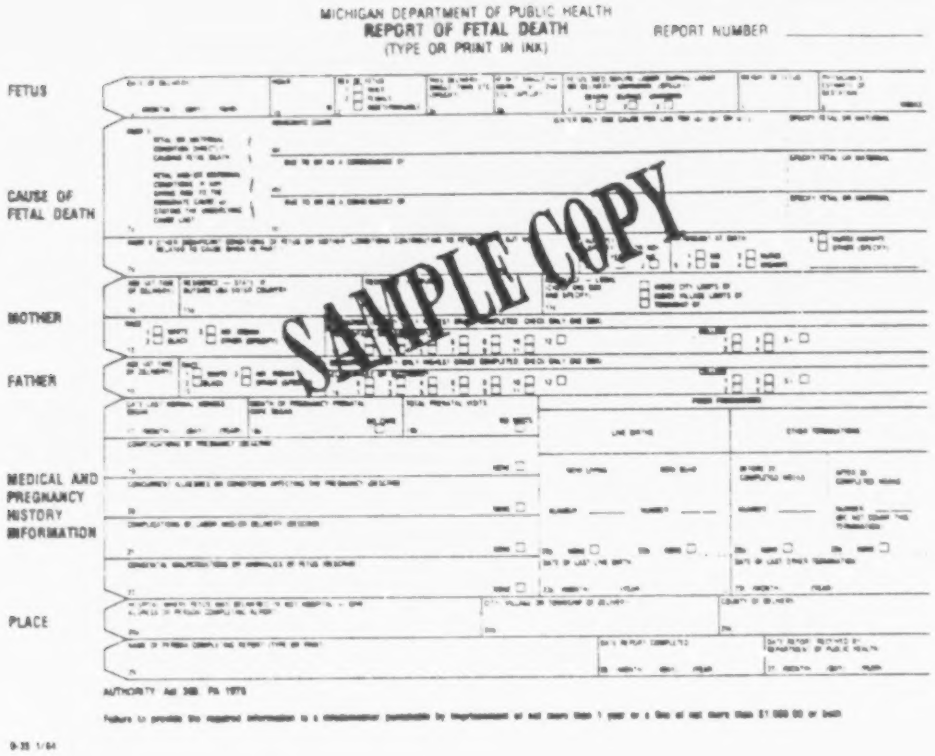
CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THIS PREGNANCY (DESCRIBE)
27 ☐ NONE

COMPLICATIONS OF LABOR AND OR DELIVERY (DESCRIBE)
28 ☐ NONE

ATTENDANT AT BIRTH 29
1 ☐ MD
2 ☐ D O
3 ☐ NURSE
4 ☐ MIDWIFE
5 ☐ CERTIFIED NURSE MIDWIFE
☐ OTHER (SPECIFY)

FAILURE TO PROVIDE THE REQUIRED INFORMATION IS A MISDEMEANOR PUNISHABLE BY IMPRISONMENT OF NOT MORE THAN 1 YEAR OR A FINE OF NOT MORE THAN $1,000.00 OR BOTH

FIGURE 4.4



MICHIGAN DEPARTMENT OF PUBLIC HEALTH
REPORT OF FETAL DEATH
(TYPE OR PRINT IN INK)
REPORT NUMBER ____________

FETUS

CAUSE OF FETAL DEATH

MOTHER

FATHER

MEDICAL AND PREGNANCY HISTORY INFORMATION

PLACE

AUTHORITY Act 368, PA 1978

SAMPLE COPY

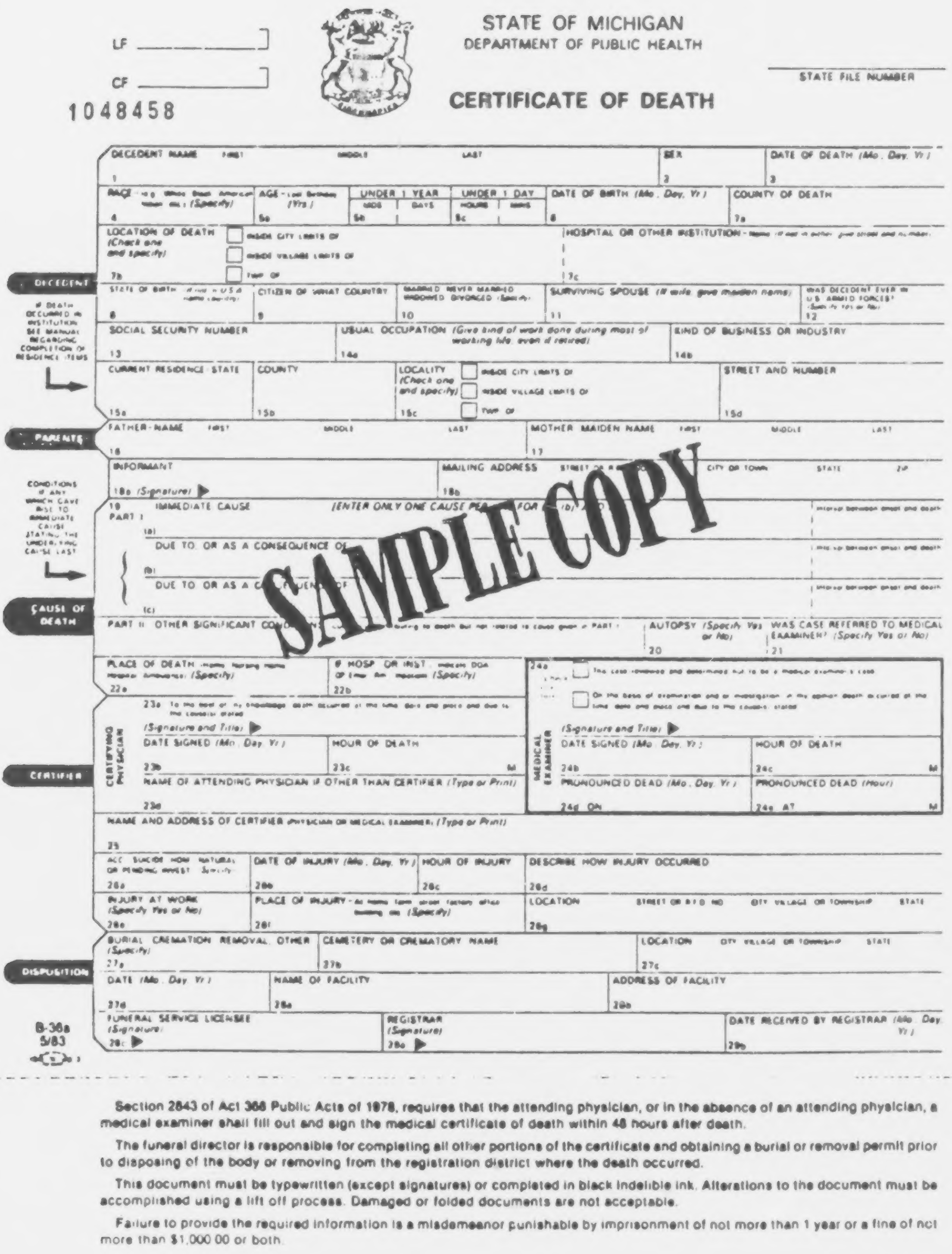
INSTRUCTIONS

Michigan Public Act 368 of 1978 requires the reporting of the death of a fetus which has completed 20 weeks of gestation or weighs at least 400 grams to the state registrar within 5 days after delivery. Responsibility for filing fetal death reports lies with the following: 1) the instutution where the fetus is delivered; 2) the attending physician if delivered outside an instutution; 3) the medical examiner, when investigation by the medical examiner is required.

As these reports are necessary in the development of important statistical health measures for the state, including fetal and perinatal mortality, and the analysis of various variables associated to fetal death outcomes, it is important that each report be as accurrate and complete as is possible.

DO NOT REPORT THE NAME OF THE BIOLOGICAL PARENTS, OR OTHER INFORMATION WHICH WOULD MAKE IT POSSIBLE TO IDENTIFY EITHER PARENT.

FIGURE 4.5



LF ________

CF ________

1048458

STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

CERTIFICATE OF DEATH

STATE FILE NUMBER

DECEDENT

DECEDENT NAME FIRST MIDDLE LAST 1 | SEX 2 | DATE OF DEATH (Mo., Day, Yr.) 3

RACE (Specify) 4 | AGE (Yrs.) 5a | UNDER 1 YEAR MOS DAYS 5b | UNDER 1 DAY HOURS MINS 5c | DATE OF BIRTH (Mo., Day, Yr.) 6 | COUNTY OF DEATH 7a

LOCATION OF DEATH (Check one and specify) 7b ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF | HOSPITAL OR OTHER INSTITUTION 7c

STATE OF BIRTH 8 | CITIZEN OF WHAT COUNTRY 9 | MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify) 10 | SURVIVING SPOUSE (If wife, give maiden name) 11 | WAS DECEDENT EVER IN U.S. ARMED FORCES? 12

IF DEATH OCCURRED IN INSTITUTION SEE MANUAL REGARDING COMPLETION OF RESIDENCE ITEMS

SOCIAL SECURITY NUMBER 13 | USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) 14a | KIND OF BUSINESS OR INDUSTRY 14b

CURRENT RESIDENCE STATE 15a | COUNTY 15b | LOCALITY (Check one and specify) 15c ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF | STREET AND NUMBER 15d

PARENTS

FATHER-NAME FIRST MIDDLE LAST 16 | MOTHER MAIDEN NAME FIRST MIDDLE LAST 17

INFORMANT 18a (Signature) ▶ | MAILING ADDRESS 18b CITY OR TOWN STATE ZIP

CAUSE OF DEATH

CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST

19 PART I IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)) (a) | Interval between onset and death

DUE TO, OR AS A CONSEQUENCE OF (b) | Interval between onset and death

DUE TO, OR AS A CONSEQUENCE OF (c) | Interval between onset and death

PART II OTHER SIGNIFICANT CONDITIONS | AUTOPSY (Specify Yes or No) 20 | WAS CASE REFERRED TO MEDICAL EXAMINER? (Specify Yes or No) 21

SAMPLE COPY

PLACE OF DEATH (Specify) 22a | IF HOSP. OR INST. (Specify) 22b

CERTIFIER

CERTIFYING PHYSICIAN

23a (Signature and Title) ▶

DATE SIGNED (Mo., Day, Yr.) 23b | HOUR OF DEATH 23c M

NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print) 23d

MEDICAL EXAMINER

24a ☐ ☐

(Signature and Title) ▶

DATE SIGNED (Mo., Day, Yr.) 24b | HOUR OF DEATH 24c M

PRONOUNCED DEAD (Mo., Day, Yr.) 24d ON | PRONOUNCED DEAD (Hour) 24e AT M

NAME AND ADDRESS OF CERTIFIER (PHYSICIAN OR MEDICAL EXAMINER) (Type or Print) 25

ACC. SUICIDE, HOM. NATURAL OR PENDING INVEST. (Specify) 26a | DATE OF INJURY (Mo., Day, Yr.) 26b | HOUR OF INJURY 26c | DESCRIBE HOW INJURY OCCURRED 26d

INJURY AT WORK (Specify Yes or No) 26e | PLACE OF INJURY (Specify) 26f | LOCATION STREET OR R.F.D. NO. CITY, VILLAGE OR TOWNSHIP STATE 26g

DISPOSITION

BURIAL, CREMATION, REMOVAL, OTHER (Specify) 27a | CEMETERY OR CREMATORY NAME 27b | LOCATION CITY, VILLAGE OR TOWNSHIP STATE 27c

DATE (Mo., Day, Yr.) 27d | NAME OF FACILITY 28a | ADDRESS OF FACILITY 28b

FUNERAL SERVICE LICENSEE (Signature) 28c ▶ | REGISTRAR (Signature) 29a ▶ | DATE RECEIVED BY REGISTRAR (Mo., Day, Yr.) 29b

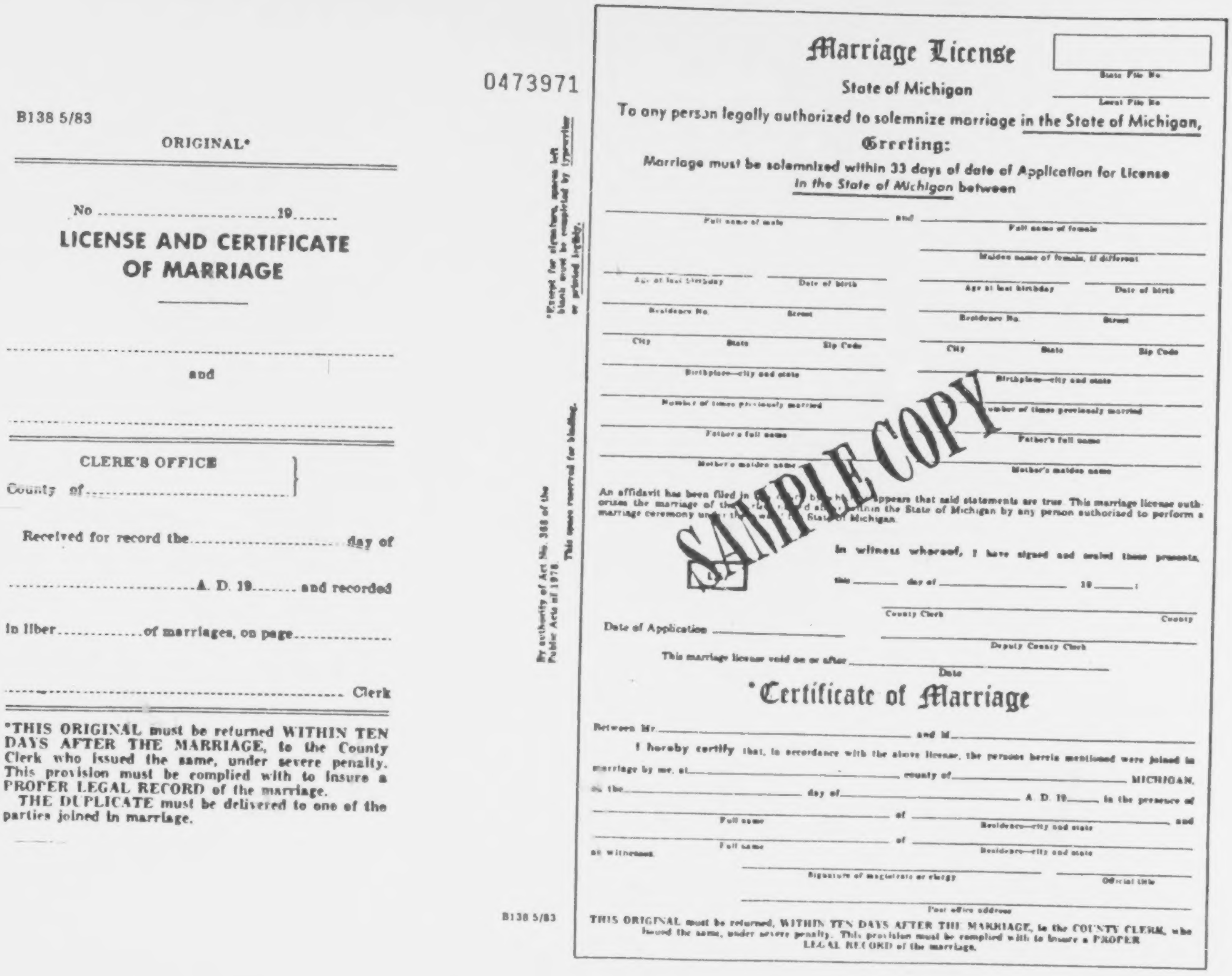
B-38a
5/83

Section 2843 of Act 368 Public Acts of 1978, requires that the attending physician, or in the absence of an attending physician, a medical examiner shall fill out and sign the medical certificate of death within 48 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

This document must be typewritten (except signatures) or completed in black indelible ink. Alterations to the document must be accomplished using a lift off process. Damaged or folded documents are not acceptable.

Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1,000.00 or both.



B138 5/83

ORIGINAL*

No .... 19......

LICENSE AND CERTIFICATE OF MARRIAGE

....

and

....

CLERK'S OFFICE

County of..................................

Received for record the........................day of

............................A. D. 19.......and recorded

in liber..............of marriages, on page..............

.... Clerk

*THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE, to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage.

0473971

*Except for signatures, spaces left blank must be completed by typewriter or printed legibly.

This space reserved for binding.

By authority of Act No. 368 of the Public Acts of 1978.

Marriage License

State File No

Local File No

State of Michigan

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 33 days of date of Application for License *in the State of Michigan* between

Full name of male ______ and Full name of female ______

Maiden name of female, if different ______

Age at last birthday ______ Date of birth ______ Age at last birthday ______ Date of birth ______

Residence No. ______ Street ______ Residence No. ______ Street ______

City ______ State ______ Zip Code ______ City ______ State ______ Zip Code ______

Birthplace—city and state ______ Birthplace—city and state ______

Number of times previously married ______ Number of times previously married ______

Father's full name ______ Father's full name ______

Mother's maiden name ______ Mother's maiden name ______

An affidavit has been filed in [illegible] appears that said statements are true. This marriage license authorizes the marriage of the [illegible] within the State of Michigan by any person authorized to perform a marriage ceremony under the [illegible] State of Michigan.

SAMPLE COPY

L. S.

In witness whereof, I have signed and sealed these presents,

this ______ day of ______ 19 ______;

County Clerk ______ County

Date of Application ______

Deputy County Clerk ______

This marriage license void on or after ______ Date

*Certificate of Marriage

Between Mr. ______ and M ______

I hereby certify that, in accordance with the above license, the persons herein mentioned were joined in marriage by me, at ______ county of ______ MICHIGAN, on the ______ day of ______ A. D. 19 ______ in the presence of

______ Full name of ______ Residence—city and state and

______ Full name of ______ Residence—city and state

as witnesses.

______ Signature of magistrate or clergy ______ Official title

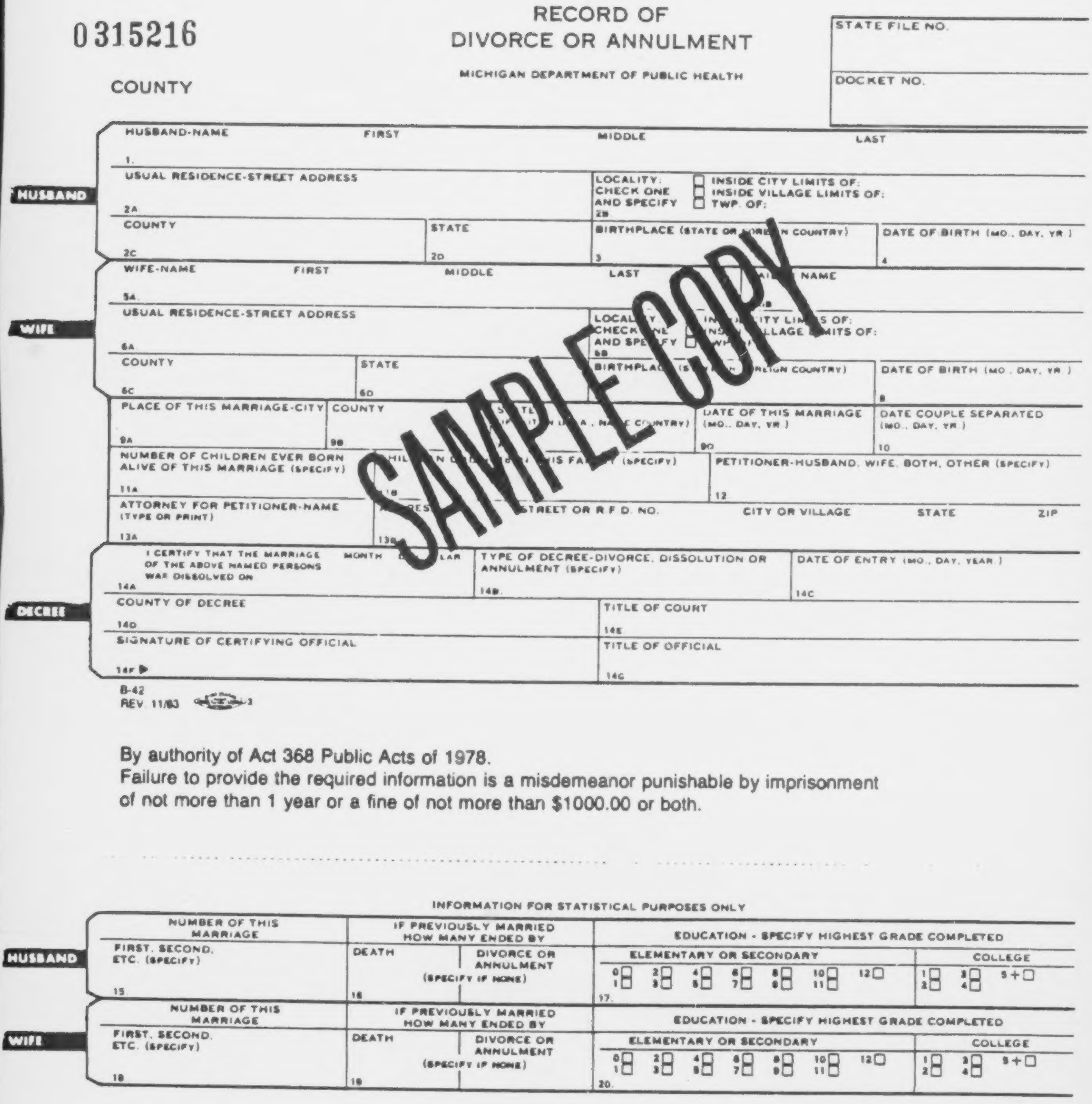
______ Post office address

B138 5/83

THIS ORIGINAL must be returned, WITHIN TEN DAYS AFTER THE MARRIAGE, to the COUNTY CLERK, who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

FIGURE 4.6

FIGURE 4.7



0315216

COUNTY

RECORD OF DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

STATE FILE NO.

DOCKET NO.

SAMPLE COPY

HUSBAND

HUSBAND-NAME FIRST MIDDLE LAST 1.

USUAL RESIDENCE-STREET ADDRESS 2A

LOCALITY: CHECK ONE AND SPECIFY 2B ☐ INSIDE CITY LIMITS OF: ☐ INSIDE VILLAGE LIMITS OF: ☐ TWP. OF:

COUNTY 2C

STATE 2D

BIRTHPLACE (STATE OR FOREIGN COUNTRY) 3

DATE OF BIRTH (MO., DAY, YR.) 4

WIFE

WIFE-NAME FIRST MIDDLE LAST 5A.

…AI… NAME 5B

USUAL RESIDENCE-STREET ADDRESS 6A

LOCAL… CHECK… AND SPE…FY 6B ☐ IN… …ITY LIM…S OF: ☐ INS… …LLAGE …MITS OF: ☐ …

COUNTY 6C

STATE 6D

BIRTHPLAC… …REIGN COUNTRY) 7

DATE OF BIRTH (MO., DAY, YR.) 8

PLACE OF THIS MARRIAGE-CITY 9A

COUNTY 9B

STATE … A., NA… COUNTRY) 9C

DATE OF THIS MARRIAGE (MO., DAY, YR.) 9D

DATE COUPLE SEPARATED (MO., DAY, YR.) 10

NUMBER OF CHILDREN EVER BORN ALIVE OF THIS MARRIAGE (SPECIFY) 11A

CHIL…N … …IS FA…Y (SPECIFY) 11B

PETITIONER-HUSBAND, WIFE, BOTH, OTHER (SPECIFY) 12

ATTORNEY FOR PETITIONER-NAME (TYPE OR PRINT) 13A

…RES… …STREET OR R.F.D. NO. CITY OR VILLAGE STATE ZIP 13B

DECREE

I CERTIFY THAT THE MARRIAGE OF THE ABOVE NAMED PERSONS WAS DISSOLVED ON 14A MONTH … …AR

TYPE OF DECREE-DIVORCE, DISSOLUTION OR ANNULMENT (SPECIFY) 14B.

DATE OF ENTRY (MO., DAY, YEAR.) 14C

COUNTY OF DECREE 14D

TITLE OF COURT 14E

SIGNATURE OF CERTIFYING OFFICIAL 14F ▶

TITLE OF OFFICIAL 14G

B-42
REV. 11/83

By authority of Act 368 Public Acts of 1978.
Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1000.00 or both.

INFORMATION FOR STATISTICAL PURPOSES ONLY

HUSBAND

NUMBER OF THIS MARRIAGE — FIRST, SECOND, ETC. (SPECIFY) 15

IF PREVIOUSLY MARRIED HOW MANY ENDED BY — DEATH / DIVORCE OR ANNULMENT (SPECIFY IF NONE) 16

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 17.

ELEMENTARY OR SECONDARY: 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐

COLLEGE: 1☐ 2☐ 3☐ 4☐ 5+☐

WIFE

NUMBER OF THIS MARRIAGE — FIRST, SECOND, ETC. (SPECIFY) 18

IF PREVIOUSLY MARRIED HOW MANY ENDED BY — DEATH / DIVORCE OR ANNULMENT (SPECIFY IF NONE) 19

EDUCATION - SPECIFY HIGHEST GRADE COMPLETED 20.

ELEMENTARY OR SECONDARY: 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ 11☐ 12☐

COLLEGE: 1☐ 2☐ 3☐ 4☐ 5+☐